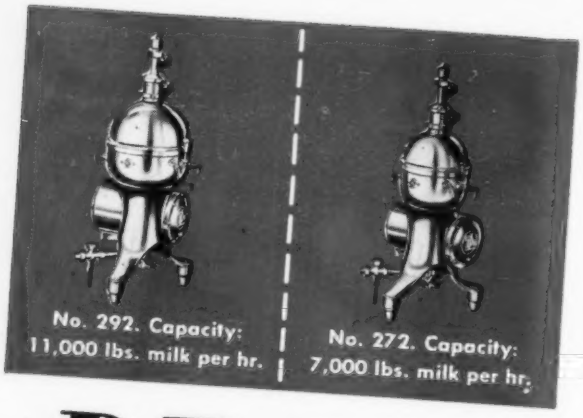
American MILK REVIEW

AMERICAN MILK REVIEW BUTTER REVIEW EGG & POULTRY REVIEW

AN URNER-BARRY PUBLICATION

JAMES SAWDERS-COMBINE.

THE MILKMAN MAKES HIS ROUNDS IN DENMARK'S CAPITAL CITY



No. 292. Capacity: 11,000 lbs. milk per hr.

No. 272. Capacity: 7,000 lbs. milk per hr.

The "AIR-TIGHT" Separator

- Makes it possible to produce better cream.
- Operates in a hermetically sealed system.
- Delivers cream and skimmilk free from foam.
- Butterfat content of cream may be changed while the separator is in operation.
- Produces cream having greater churnability.
- Skims cleaner and at lower temperature.

DE LAVAL'S NEW "AIR-TIGHT" Machines

Look at all these NEW advantages of the 200 SERIES machines

- ✓ Available in two types in each size:
  (1) cast-iron frames painted opalescent gray.
  (2) frames made of Non-Corrosive metal.
- ✓ Lower frame makes the machine particularly easy to assemble and disassemble.
- ✓ Quiet operation. The bowl "floats" in rubber; the top bearing assembly is cushioned in rubber.
- ✓ New type of ball feet are also cushioned in rubber. They are vibrationless and sanitary.
- ✓ Operate at lower inlet pressures, thus decreasing pump wear and allowing use of smaller pump.
- ✓ Shorter spindle makes even more rigid assembly.
- ✓ No clutch—worm wheel is keyed to taper on motor shaft. Motor requires no oiling.
- ✓ New seals designed for considerably longer life.
- ✓ Machine presents unbroken streamlined surface, as beautiful as it is sanitary.

Absence of air ensures minimum oxidation and also prevents foaming

Machines with frames of Non-Corrosive metal are furnished at slight additional cost.

De Laval AIR-TIGHT CREAM SEPARATORS and MILK CLARIFIERS

STAINLESS STEEL EQUIPPED!

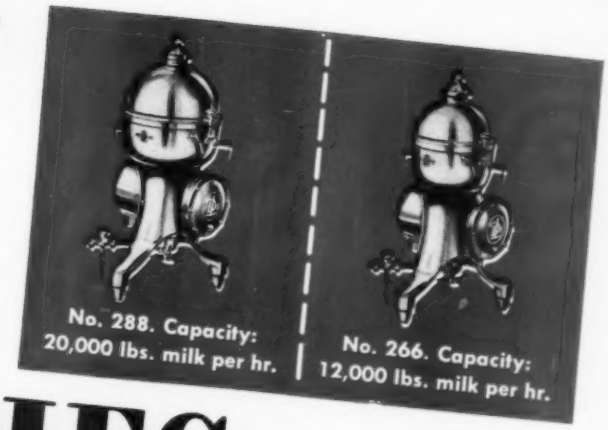
The highly polished Non-Corrosive frame will not corrode, pit or rust

The bowl hood on all "Air-Tight" machines is made of stainless steel.

American Milk Review — November, 1948. Published monthly by Urner-Barry Company at 173 to 175 Chambers Street, New York. Domestic subscription $3.00 per year; foreign $3.50 per year. Acceptance under the act of June 5, 1924, authorized May 14, 1948.

The "AIR-TIGHT" Clarifier

- Removes sediment—does not dissolve it.
- Keeps milk from contact with air.
- Does not cause foam.
- Operates at either low or high temperature.
- Milk can be elevated without additional pumping.
- Helps to improve flavor of the milk.
- Is not wasteful of the product.
- Does not increase bacteria counts.
- Costs less to operate.

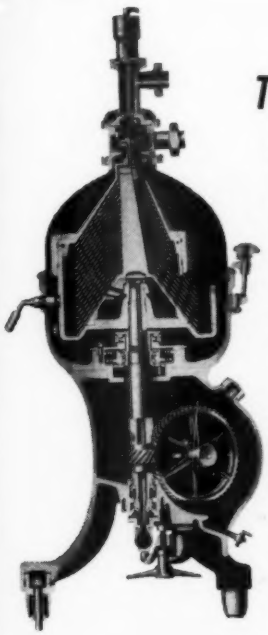


No. 288. Capacity: 20,000 lbs. milk per hr.

No. 266. Capacity: 12,000 lbs. milk per hr.

200 SERIES

bring you many great, new, additional features while retaining all the famous time-tested "Air-Tight" principles!



The "INSIDE" Story

The basic De Laval "Air-Tight" design remains unchallenged as the most efficient ever devised. The cross-section view of the new 200 Series Separator (Clarifier has same working parts) shows the improved upper and lower bearings that cause the bowl to "float" in rubber; the rubber-cushioned ball feet; the direct motor drive —without clutch; the short spindle; and other details that mean lower maintenance and even quieter, smoother performance.

The No. 226

NEW ADDITION TO THE DE LAVAL "AIR-TIGHT" CLARIFIER FAMILY

. . . 3,000 pounds of milk per hour

For plants whose requirements do not exceed 3,000 pounds of milk per hour.

Although smaller in capacity and size, the New No. 226 is in every way equal in efficiency to larger "Air-Tight" clarifiers. It embodies the same principles of receiving and discharging milk under pressure through hermetically sealed connections. It keeps milk from contact with air, does not produce foam and enables milk to be elevated as required without additional pumping. The frame is painted opalescent gray.

THE DE LAVAL SEPARATOR COMPANY
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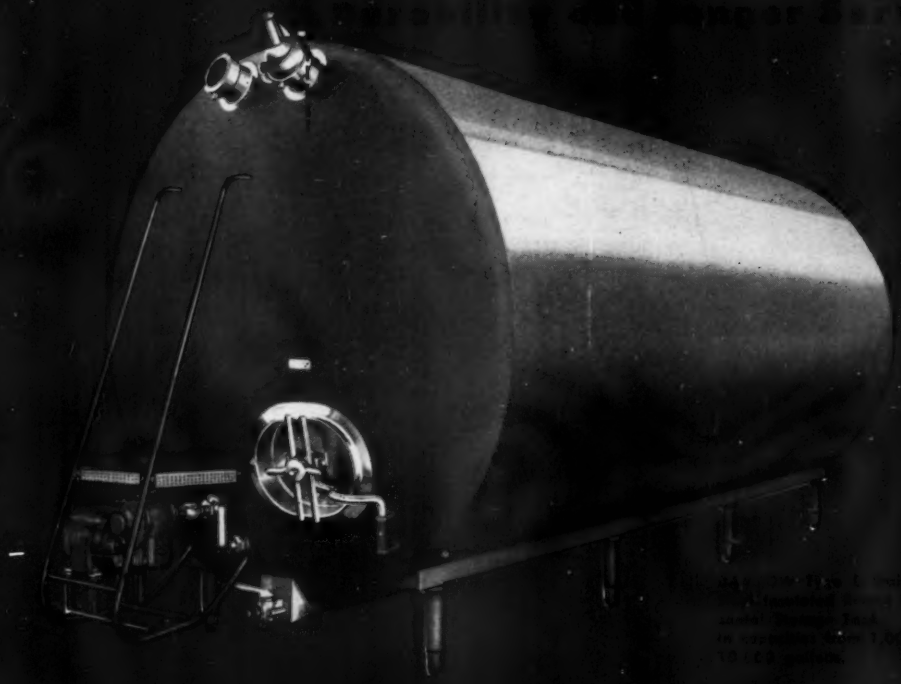
DE LAVAL PACIFIC CO. • 61 Beale St., San Francisco 5
THE DE LAVAL COMPANY, Limited
Peterborough, Ontario

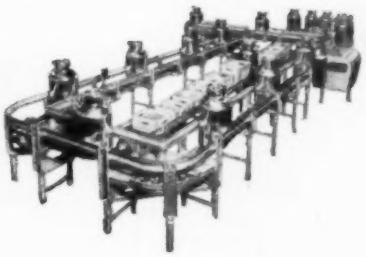
DAMROW

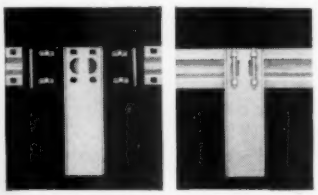
STORAGE TANKS



DAMROW BROTHERS COMPANY

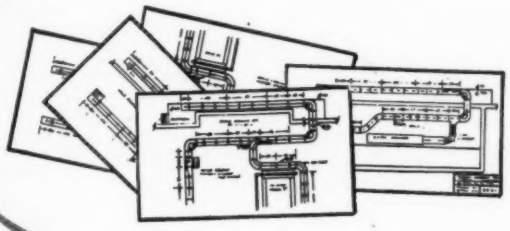
Hi-flex sensational new conveyor for cases, cans, cartons





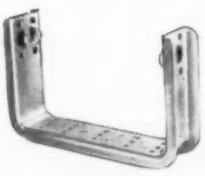
Pin-Clip Connectors. **As easy to put together as a toy! Slip in the clips and pin them for firm, strong units. To take apart, merely knock the pins out. This simplicity means easy replacement, quick interchange of sections to fit your changing needs, and low-cost maintenance.**

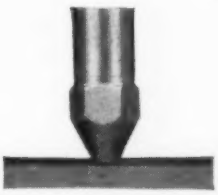
Hook-n-Eye Chain. **An exclusive feature of Hi-Flex—so easy to disassemble! Merely ease off on the take-up and take apart *by hand*. Hook-n-Eye chain has a wide carrying platform, yet it can flex up, down, right, or left. No pins, rivets, connecting links, or concealed pockets.**



PORTABLE, YET PERMANENT!

Hi-Flex **permits an almost limitless variety of conveyor layout. It will fit your needs today —and every day. Packaged units are available, and interchangeability of parts — plus easy assembly and disassembly — makes it simple to remove or add straight sections, curves, take-ups, and drives. And it's a snap to change from single chain to double chain conveyor. Hi-Flex can be moved in the plant or from plant to plant as conditions change.**





UNIFORM!

Interchangeable. **Precision-built units and parts give maximum interchangeability. Uniformity and standardization simplify your assembly, installation, and changes. As time goes on, you'll appreciate more and more the rugged construction of the standardized Hi-Flex parts. For they're heavier—galvanized to give many extra years of trouble-free service . . . many extra years of rigid, true alignment.**

CASE

MILK CAN

ICE CREAM CAN

The almost limitless range of set-ups makes Hi-Flex a conveyor to grow or change with your needs. Put your case, can, or carton moving on a sanitary, money-saving basis. Ask your Cherry-Burrell representative for details.

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trendmaker in a great industry

XUM

Thatcher T-SQUARES*

THE MOST IMPORTANT FACTOR IN MILK DISTRIBUTION

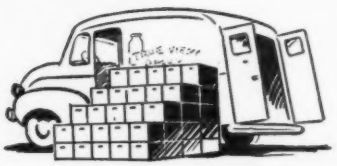
The number of quarts delivered per route each day is the most important item affecting milk delivery costs. The larger the route load, the lower the unit cost; and lower unit cost means more profit for your milk plant.

Thatcher T-Square returnable glass milk bottles will easily help you increase your daily route load by one-third . . . and this will reduce costs by as much as 1c per quart.

Ask the milk dealers who have Thatcher T-Squares and they will tell you that converting to these modern milk bottles is the most important factor in reducing selling and delivery costs, because:

More Milk

Route loads increased easily by 40%



More Space

Gain 50% more space in cold rooms and refrigerators

More Trips

Trippage increased; result: the lowest cost container for milk

More Customers

Surveys show that housewives prefer T-Squares.

Write us to have the Thatcher Representative in your area personally give you full information about installing Thatcher T-Squares in your milk plant.

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Manufacturing Company, Inc.
Elmira, N. Y.

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American MILK REVIEW

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XUM

Here's a striking example of damage resulting from hard water—a case which might be considered exceptional but unfortunately is not. Costs increased and production suffered in the dairy plant where carelessness and inefficiency in management permitted this condition to develop.

No attention was given the water used in this six-can washer. Over a period scale became so thick and hard that the washer was taken out of service. There are several effective scale removers that help correct conditions like this. One is Scalaside, available powdered or liquid form.

WHY HARD WATER

By **WEBSTER KUSWA**

Morrison Advertising Agency, Milwaukee, Wis.

IS WATER REALLY H_2O? No, it can't be quite so simply expressed. If you set out to make a formula list of all the different combinations that compose water, you'd be kept busy for a long time. It's enough to say that there are as many different kinds of water as there are fish in it.

Good water is an essential to profitable operations. To keep plant equipment free of sludge and scales, it is necessary to determine the exact chemical content of a representative sample and then work out a special compound that will remove the minerals.

WEBSTER KUSWA

To understand why this is so, we must consider what makes water from various regions fall way from the norm H_2O. It is mostly a matter of movement through what is known as the hydrologic cycle—the natural process that helps make all life possible.

The oceans are the storage centers. Water evaporates from these storage centers in the condensation zone. Then it becomes a moisture-loaded air mass, a cloud. When atmospheric conditions are right, the cloud is broken up and rain falls. Some will drop on vegetation, some directly on the earth. The rest, of course, goes straight back to the sea.

Evaporation will immediately begin taking water back from plants and the earth itself, but only in minute quantities. The mass of water reaching the earth follows surface contours to temporary storage in lakes or seeps down to find its own level.

Seepage is known as ground water. Some seepage stays in underground fissures or caves and the rest builds up underground pressure through the circumstances of its own weight and the "piping" action of slanted rock strata. It is the pressure in these natural "pipes" that accounts for springs.

Through every phase of its travel, water has a tendency to pick up foreign substances that affect the purity expressed by H_2O. When it falls from the cloud, it absorbs oxygen and other gases, as well as particles of dust and soot. While flowing through agricultural land, surface water loses oxygen and acquires carbon dioxide and organic material. In thickly inhabited regions, it picks up sewage and industrial waste.

Ground water may reach and gradually dissolve a layer of limestone, magnesia or other minerals. Lime-charged water dripping from the ceilings of subterranean caverns explains the growth of stalactites and stalagmites; it explains how creatures of long-past geologic ages, like trilobites and brachiopods, could be turned into fossils by being saturated with it.

More important to the modern plant operators, it explains why lime scale and other deposits turn pipes and other dairy equipment into odd masses that were never visualized in their blueprints.

As it happens, some lime- or magnesium-charged water flows through sandy soil that filters out a percentage, large or small, of the foreign elements it con-

tains. Or it may flow through subsoil fissures without being purified at all.

Occasionally you might find a surface water supply that would be satisfactory—if it weren't for spring swamp back-ups, heavy rainfall that washes in vegetation and microscopic organisms, and winds that drop loads of dust and other materials picked up many miles away.

Nature can change the chemical content of water in thousands of different ways, a few of which are indicated by this highspot review.

There is, of course, the answer—entirely impractical because of the tremendous expense involved – of distilling water and thus removing all the scale-forming materials. This can be quickly ruled out, since the still would represent a big capital investment and the fuel to operate it would practically eliminate the profit margin. The clincher against the method is the waste of water—up to ten gallons of impure water for one gallon of pure.

The least expensive way, and perhaps the most practical, is to depend on chemical specialists for an analysis of the water used in a dairy plant. Their analysis will suggest a *special* compound designed to offset any natural deficiencies and make the water suitable for dairy plant use.

Actually, the results of impure water go far beyond reduced boiler efficiency through sediment-blocked pipes—far beyond the capital loss represented by scale-encrusted equipment. All dairy products are highly sensitive to the odors or tastes of the objects they contact, and there is no faster way to lose goodwill than by producing off-taste dairy foods. Even cream curdling in tea or coffee may be traceable to the hardness of water used in the infusion.

Naturally, consumers can't be expected to draw a fine line of distinction as to cause. They only know that a certain food product displeases them, and they conclude that it wasn't made right. Yet the food product in question might be the finest on earth, requiring nothing in its manufacturing processes except pure water.

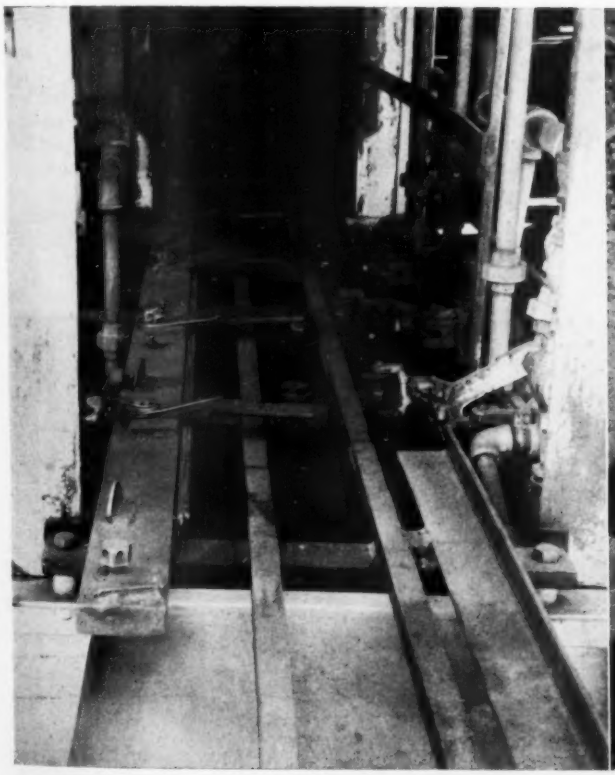
Black spots in milk cans and nickeled surfaces sometimes result from sulphurous water. Unappetizing residue from evaporation of rinse water on what should have the high gleam of stainless steel is typical of the problems confronting the operator who uses sulphur-charged water. This residue raises labor costs and makes a bad impression on visiting consumers and Department of Health inspectors.

Butter churn wood frequently has a surface gumminess that can be traced to hard water heated to high temperatures by steam injectors. Oversoftened water, however, may cause disintegration of the churn wood.

In each instance, the only safe way to combat the effects of hard water is to get a laboratory analysis of the water used in the plant and then depend on a special softening formula to make it completely acceptable.

Hard water must be recognized as an enemy of dairy operators. The best they can do is not to be "soft" in their attitude toward it.

REQUIRES SPECIALIZED TREATMENT



This four-can washer gave good results during its entire service life. A chemically correct water-softening formula was worked out after the plant water had been analyzed. Once applied and maintained in a condition of proper operation, it prevented formations of scale or sludge.

Scale a half inch thick has formed on this water rinse, which entirely lacks the clear sparkle visitors and inspectors look for. With preventive measures so simple, such negligence is hard to understand. All that is needed to combat similar conditions is to call for expert advice.

IT WAS A REAL SHOW

Twenty Thousand Visitors Saw Six Acres of Displays Shown by Three Hundred and Fifty Exhibitors at the 16th Dairy Industries Exposition

By **NORMAN MYRICK**

A RAW NORTHEAST STORM haggled with visitors for possession of the famed Board Walk as the 16th Dairy Industries Exposition opened Monday, October 25 in Atlantic City's mammoth convention hall. By mid-week, however, out traded on every front, the storm gave way to blue skies and Indian Summer weather as attendance figures soared beyond the twenty thousand mark. Dairymen from all over the world jammed the huge auditorium to inspect the displays of 350 exhibitors that filled every square foot of the more than six acres of available space.

Stainless steel stole the show. Hardly had DISA President Ray Olson declared that, "This is the first Dairy Industries Exposition which shows, in all its fullness, the post war progress made by our industry," than visitors became aware of the dominant role that stainless steel was playing in the modern dairy industry. Fabricated into an amazing variety of useful forms, polished to mirror-like brilliance, the metal was everywhere. Cold wall holding tanks the size of a freight car, separators and clarifiers literally more precious than silver, tubular heaters like multibarreled gattling guns, surface coolers resembling a partly opened book in appearance and a barn door in size, reflected the overhead lights that filtered downward through a thin haze of cigarette smoke.

The exhibitors used many ingenious methods to tell their stories. One firm, demonstrating the action of a recording thermometer that had a two second reaction time, had their thermometer attached to a universal joint that was activated by a time mechanism. The thermometer swung from a cold stream of water to a hot stream at one minute intervals and the difference in temperature was spectacularly recorded almost instantly on a disc chart as each swing was made.

Manufacturers of Bottle washers had some superb pieces of equipment on the floor. One firm displayed a gigantic machine that occupied an entire box car in shipment. The piece was painted white, and reminded one of a gigantic polar bear. Doors to the interior were open to allow visitors a view of the actual operation of the machine.

The use of glass panels in operating equipment was a popular technique. An exhibitor of a can washing machine had the entire side of his device in glass so that the movement of the can through the washer could be observed. One of the most intriguing of all these mechanical exhibits was another can washer that was presented in the form of a glass enclosed model built on a scale of 1 to 4. The model was complete in every detail and, according to the exhibitor, could do everything that a real machine could do. Miniature cans were washed in the machine and the action of each different spray could be examined. A further refinement was in the use of glass cans so that one could see not only the interior of the washer but also the washing action on interior of the can. This same glass can idea was used by another can washing manufacturer with full sized cans. Many visitors declared that the model idea was one of the outstanding innovations in display technique. Its advantage, of course, lies in the ease with which it can be handled, the small amount of space that it occupies, and the compact nature of the demonstration to which it lends itself.

Possibly the most encouraging development in can washer design was the provision for a constant supply of clean water. The big problem in can washing, as any dairyman knows, is the dirty water that materializes after the can washing operation gets underway. The new arrangement allows the wash water to be partially drained off or skimmed at regular intervals thus washing the can in clean water instead of water that becomes progressively more contaminated.

Progress in Fillers

Cappers and fillers occupied a substantial amount of space and came in for a major share of attention. Several interesting machines were demonstrated, each with its own new twist. The most extensive advance in filler evolution rested with a machine that incorporated the vacuum with the filler valve. The same machine also had a new wrinkle in that it was so designed that the capper could be disassembled and cleaned. Both of these features created a great deal of interest among handlers.

Cold walled holding tanks were exhibited by a number of manufacturers. Advantage of the tanks lies in the rapid cooling and maintenance of the resulting low temperature by one piece of equipment. Heretofore it has been necessary to cool milk in one piece of equipment and store it in another. The new development provides for cooling and storing in one unit. An additional advantage in this type of tank is the simplified cleaning

A panoramic view of the main floor of Convention Hall at Atlantic City showing half of the six acres of exhibits that were inspected by more than twenty thousand visitors.

HERE'S A BOOK TO HELP YOU . . .

SAVE MILK, MAN-HOURS and MONEY!

You are now offered a new book by Cherry-Burrell, reviewing the modern advancements that make real savings possible in milk plant operations.

This book is the result of observation and study by Cherry-Burrell engineers and technicians. It outlines the approach to up-to-date principles which you can apply in gaining the highest efficiency of equipment, savings in man-hours, and the least loss of milk.

These are things that every plant, large or small, is striving for today. This book points the way to the goal. If you did not receive your copy at the Dairy Industries Exposition,

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that results. Inasmuch as the cooler and the tank are the same thing, only one piece of equipment has to be cleaned. As nearly as could be determined all of the cold walled tanks were of stainless steel with the refrigerant circulating between the inside jacket and the outside jacket. The jackets were given support by a system of welded construction that varies with different manufacturers. Some prefer a spot weld while others use a seam or stitch weld. Results of tests on these cold walled tanks indicate that they turn in a satisfactory performance.

Manufacturers of separators and clarifiers brought out some new designs that showed substantial practical improvement. One firm used the show as an opportunity to introduce a new series of the machines. Although the bowl remains the same the principal new features are a lower frame, inlet pressures 20 per cent lower, new type seals, elimination of the clutch—a change made possible by improvements in motor design—and the elimination of the hoist. Hoisting will be done by a special mobile hoist that can be moved from machine to machine. The same manufacturer also had a new small capacity separator on display designed to meet the needs of small dairy plant operators. Another separator and clarifier firm exhibited a machine for small plants that featured a cylindrical bowl which rotated at 12,000 R.P.M. Representative of a trend in milk handling equipment was the attention to the cleaning problem embodied in the design. With this particular manufacturer, as with others, the use of stainless steel as a thing of beauty as well as a utilitarian metal, was evident. The exterior surfaces of the machines were made entirely of highly polished stainless steel.

Pasteurizing Equipment

Pasteurization equipment on exhibition showed many refinements, which, while not as spectacular as in some other machines, represented valuable developments for the industry. One patch pasteurizer had a clever arrangement whereby the control switch for starting and stoping was built into the cover lock. When the locking handle was pushed into locking position it pressed a button which started the agitator. When the handle was unlocked in preparation for raising the cover, the switch was released and the agitator turned off.

Gaskets on high temperature short time pasteurizers came in for some attention. Molded rubber gaskets were the most common type to be seen, although one firm displayed a plate with the gasket consisting of a finely machined metal surface which was an integral part of the plate.

Container and closure manufacturers put on some of the best displays seen on the floor. Both glass and paper were very much in evidence. With glass bottles, the square unit came in for the major emphasis. Space saving effected by the square bottle as well as increasingly greater trippage were qualities that the exhibits underlined. Manufacturers of paper containers and paper bottling machinery had some streamlined exhibits. A complete paper container machine was set up and put into operation by one firm. Most startling of the developments in the paper container field was the revelation of a container that, according to the manufacturer, licked the problem of leakers, yet came in the knock-down stage ready to be assembled by the machine. The machine assembled and filled the containers at the rate of seventy-five per minute. The manufacturer pointed out, however, that it was useful only for the large processor where a substantial volume would justify the initial expense.

Robert Rosenbaum, Past President of DISA, and Sir Herbert Broadly, Deputy Director-General of the Food and Agricultural Organization of the United Nations, toast the industry with the industry's favorite toast.

"Most Revolutionary Aspect"

Towering above the tremendous acreage of exhibits were the milk evaporators. These evaporators, the largest must have extended twenty feet above the floor, represented, in the words of one observer, "the most revolutionary aspects of the show". Especially impressive was the use of "triple effects" and vacuums. The term "effects" applies to a series of stages of progressive heating whereby the vapor from one batch of milk is used to heat another batch. It is a good deal like lifting oneself by the bootstraps and just about as unusual. In order to take advantage of the heat thus supplied and get vaporization the evaporators employ progressively lower air pressures. In this manner the heat in the second effect does not need to be as intensive as the heat in the first effect because the pressure is lower in the second effect and consequently the milk will vaporize at a lower temperature. The great significance in the progress of evaporator design, which these installations spotlighted, was to raise the question as to the role that concentrated milk will play in the future.

Flavor manufacturers, chocolate firms, and producers of orange concentrate were out in full force. An extremely impressive exhibit was put on by a vanilla company. The exhibit was simplicity itself but the story that it told, through the use of some splendid photographs effectively used, was worth the price of admission. The *American Milk Review* is a firm believer in the contention that information and appreciation of information are the handmaidens of progress. The epic created by the progress of a vanilla bean from tropical jungle to Junior's ice cream cone was superbly told. It was the stuff from which a better industry is fashioned.

Chocolate Will Be Tight

Both the chocolate and the orange people attracted a wide custom. While the dispensing of free samples of tasty beverages accounts for some of the attention given these exhibits there was no mistaking the fundamental interest by visiting dairymen. Chocolate manufacturers said that present conditions in their market were on the difficult side. Cocoa butter is apparently selling at a figure below what it should be in order for there to be a good supply of cocoa powder. Manufacturers are not finding it profitable to grind new cocoa as long as the cocoa butter, which is one of the products of grinding, floods the market. Until surplus cocoa butter is absorbed it is generally conceded that supplies of chocolate will be tight.

Display cabinets and soda fountains were present in sufficient quantities and design to satisfy the most exacting merchandizer. Most of the cabinets featured an open, shallow well allowing the customer in a self-service store to reach the merchandise without opening a slide or hatch. The cool air, being heavier than warm air, tends to stay below the top of the well and, therefore, keeps the items in the well cool without the necessity of a cover. One vending type cabinet for beverages was observed that had the bottles suspended by two parallel bars that were wide enough apart to accommodate the necks of the containers but not wide enough to allow the flared tops to pass through. The insertion of a coin enabled the purchaser to slide the containers along the bars to the end and remove them from the cabinet.

Economics in Fuel Consumption

Boilers, hot water heaters, steam generators, and compressors were presented in a number of exhibits. The technique used extensively in these exhibits was the cut away. A cross section of a hot water heater was exhibited in one booth and supplemented by a small table-sized model. Another manufacturer had a complete steam generating system set forth in a cross section. This display utilized bubbles of light in transparent pipes to show the course of the water and steam

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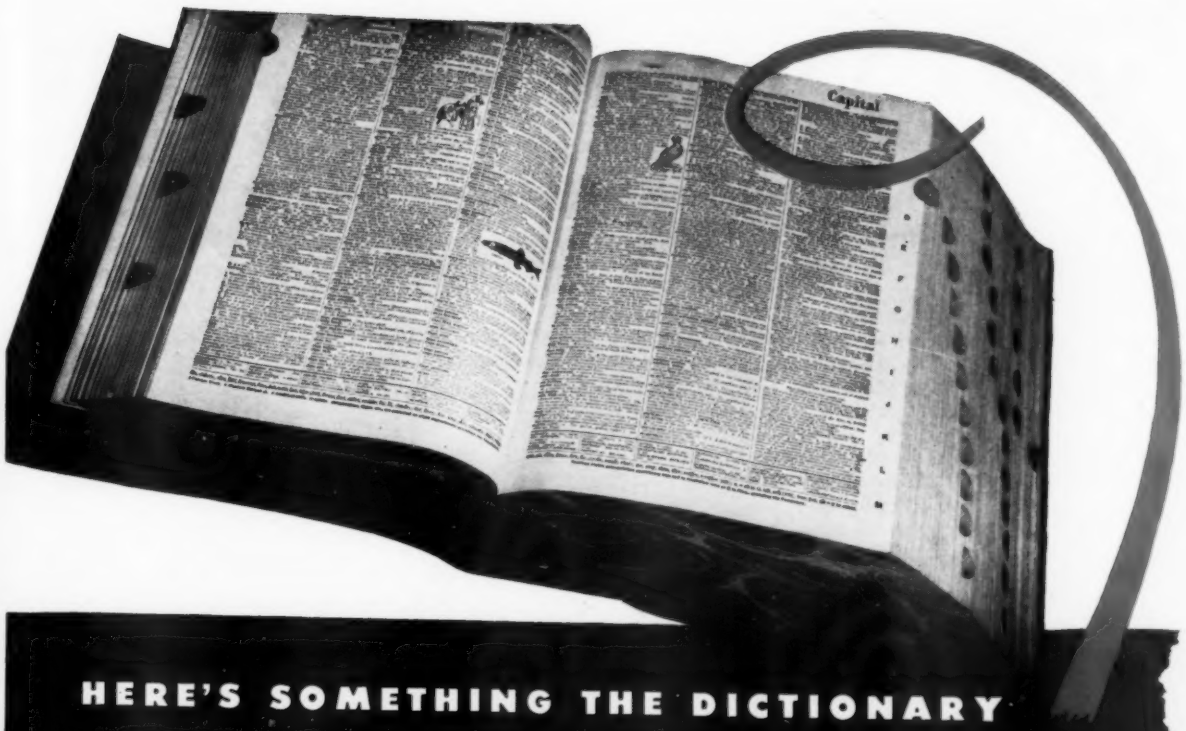

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IOWA VICTOR IN JUDGING

Close Competition Marks 27th Annual Contest Held in Conjunction with Dairy Industries Exposition — Moore of Michigan Cops All Products

By **NORMAN MYRICK**

HATTERS IN AMES, Iowa report a sudden demand for hats one size larger since the night of October 26. Other reports indicate that the corn crop has increased by eight bushels to the acre and dairy cattle are giving down with at least an extra two pounds of milk per cow. Folks in the hinterland have been laying it to sun spots but the real reason is the superb triumph of Iowa University's dairy products judging team at Atlantic City in the 27th Annual Collegiate Students International Contest in Judging Dairy Products.

Led by Don Phlueger who captured first place in both Butter and Ice Cream and took second in All Products, the Iowa team stormed to victory over the formidable competition furnished by twenty-five other teams. First in Butter, second in Cheese, second in Ice Cream, and first in Milk, the boys from the tall corn were never headed in their drive for the All Products crown.

The University of Tennessee team which captured the Ice Cream cup tries out some cheese. Left to right they are Delmar Boyce, George Brink, Harold McCracken and Coach Thomas B. Harrison.

Mid-West Sweep

It was the mid-west's night to howl. Pressing close on the leader's heels were Ohio State and Michigan. Don Moore of Michigan threw a scare into the Iowa contingent when he carried off first money in the individual standings on All Products while Ohio State's Bill Shiffermiller staked out a claim for the number three spot. As a matter of fact, with Shiffermiller's third and the interchangeable Lewis twins, Dick and John, in fifth and sixth place respectively, the Buckeye boys took three out of the first six places in the All Products scoring.

Don Moore and Ralph Whitehead gave Michigan a first when they teamed up for fourth and fifth positions in Butter. Although the individual honors in Butter went to Bill Deisley of Penn State the three points that separated first and sixth places gave the lakeside tasters a better aggregate.

Biggest surprise of the contest was Tennessee's conquest in Ice Cream. Bringing the cup South for the first time in competition history, the Volunteers clinched the title by a narrow one and a half point margin over Iowa State. The secret in team supremacy is to bunch individual scores in the low brackets. One splendid individual performance, such as that put on by Penn State's Bill Deisley, is cancelled out if team mates rank far back in the field. Tennessee's triumph was fashioned by the combined excellence of George Brink in sixth place, Del Boyce in tenth and Harold McCracken who finished close to the first ten. Individually top honors in Ice Cream went to Don Phlueger of Iowa with Johnny McLeod of North Carolina a scant 1.51 points behind. Johnny banged out his second place by the slimmest of margins over Ralph Whitehead of Michigan who ended up in third place forty-nine hundredths of a point astern of the second position.

Michigan Takes Cheese

Michigan State bunched their hits in Cheese with Don Moore and Ralph Whitehead leading the way. Don took fourth place unto himself with Ralph a point and half behind him in sixth place. Bill Deisley of Penn State jumped into first place with a tiny .42 point lead over Ohio's Johnny Lewis while Arnold Nelson from Iowa wrote his signature on number three. Cheese was a ding-dong free-for-all with only 5.33 points separating first and tenth places. Any team that could get two men in the first ten was sure of a spot in the team scoring. Both Michigan and Iowa accomplished the feat. Michigan's number three man, however, outscored his Iowa neighbor by nearly three points, an accomplishment which gave his team the top spot.

Deisley Double Winner

Penn State's Bill Deisley found milk much to his liking and left Arnold Nelson, his nearest competitor, better than five points behind as he easily took undisputed possession of first place. Dan Guyer gave Oklahoma A. and M. its only place in the top ten when he beat out Mississippi's Luther Meadows for third place. There was a big spread in the point distribution, 14.92 to 25.35, in this class. Although Iowa had only one man in the first ten the other two members of the team were not far out of the elite group, close enough at any rate to give themselves another cup to take home. Ohio had two men in the first ten but the number three man scored too far down the roster to give the team better than second. Deisley's sparkling performance was mainly responsible for Penn State's place as number three.

Two graduate research fellowships totalling $1,700 were awarded one to Iowa,

(Please turn to Page 56)

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There's no down-time when you install an Interlocking Lip Tubing Surface Cooler, with its exclusive one-piece interlocked cooling surface which provides the strongest and most efficient construction for long trouble-free service. This particular engineering improvement eliminates all brass stripping between the tubes avoiding maintenance and replacement expense. All cooler heads are beveled to divert condensation away from the milk . . . ample separating space between headers make cleaning quick and easy. Meets all health department requirements. Its sturdy construction, modern box-like design covers will greatly add to the efficiency and appearance of *your* plant.

Specialty Brass Producers Coolers designed for small farms and dairies, also sturdily constructed with the same interlocking lip tubing feature mentioned above. Send today for Bulletin 25-F giving complete detail of both models.

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AND SANITARY FITTINGS TO MEET YOUR NEEDS

EDITORIALLY SPEAKING . .

Four Boys From Texas

THE EVENING OF Tuesday October 26 at Atlantic City was set aside for the purpose of awarding prizes to the winners in the 27th Annual Collegiate Students International Contest in Judging Dairy Products. The banquet was held in the grand dinning room of elegant Traymore Hotel. Men whose names are known among dairymen of two continents participated in the ceremonies. Officials from the leading national dairy associations were present. Two $850 fellowships were awarded as well as five loving cups and fifteen gold, silver, and bronze medals.

On the surface the magnificent Iowa victory that found Ohio and Michigan in second and third places respectively, was the great event of the evening. It was a splendid triumph without question; the result of good coaching and hard work. But there was more to the evening than a low score and polished trophies. There were one hundred and three young men and one young lady representing the best of the current crop of dairy majors in twenty-six land grant colleges and universities.

We had the pleasure of enjoying our banquet meal with the team from Texas Technological College which is located in Lubbock, Texas. Their names were Henry Sprouls, William Plummer, M. L. Peeples, Durland Vickers, and their coach J. J. Wellingham. They did not win any prizes. Cheese was their best product in which they placed fifth as a team. Henry Sprouls was their high man with seventh place. But it really didn't matter. They were good judges of dairy products or they wouldn't have been playing in that league, but that didn't matter either. What did matter was that these boys had the spark. They had that something one associates with the ring of sound metal, with the solid crack of willow on horsehide when a long one goes out of the park.

The boys and their coach drove up from Texas in what was described as "a I'il ole beat up Ford". They made it in five days and expected to drive back again although there was some reasonable doubt expressed as to whether or not the vehicle would hold together that long. But that too did not matter because, from what we saw of those boys, if they were going to Texas or any other place it was a better than average bet that they would get there.

We do not think that the Texas team was particularly different from the other twenty-five teams in the contest. Each group had pleasant little differences that marked their place of origin but again it didn't matter because they all had the spark.

DISA President Ray Olson opened the program with the statement that, "Of all the activities of DISA none surpasses in importance this judging contest." And from where we were sitting, ducking wise cracks and sensing the strong, solid character of those four boys from Texas we were inclined to agree with him.

•

Bouquets To DISA

PROMPTLY AT 10 A.M. on Monday October 25 President Ray Olson of the Dairy Industry Supply Association, officially opened the 17th Dairy Industries Exposition as advertised. Promptly at 2 P.M. on Saturday October 30 the show was officially closed, likewise as advertised. In between were packed five and a half days of big league exposition.

As far as we were able to determine not one single hitch disturbed the smooth flow of the program. Oh there were a few minor details that ruffled a feather here and there. On one occassion it was announced that seven individuals with faulty credentials were on the floor and their presence, it was felt, would be more deeply appreciated in some other place. Some of the boys felt that equipment used in the booths was rented out for all that the traffic would bear and a charge of seventy-five cents for one waste basket does seem a little on the larceny side. That, however, was not the fault of DISA. It was a fault that one found quite widespread among the gentry who operate along the Board Walk.

The big picture, the picture of six acres of exhibits and three hundred and fifty exhibitors displaying their products to more than twenty-thousand visitors, that picture was without flaw. To DISA President Olson and to Executive Vice-president Roberts Everett and staff the *American Milk Review* offers its congratulations on a man sized undertaking successfully carried out. It was a mighty good show.

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The Dairy Industry

"A REMARKABLE production and distribution system" is the phrase by which The Index, quarterly publication of The New York Trust Company, describes the dairy industry. In a twelve page pamphlet that probes the milk business with characteristic banker thoroughness, the conclusion is that, "with national income on a high level, a growing population and a large export demand, it appears likely that all the milk which can be produced in the United States in the next few years will find a profitable market."

The study makes a number of stimulating discoveries. Although most of the revelations are not new to dairymen it is undeniably good for the ego to have someone else speak well of the nation's number one industry. The pamphlet points out that dairy products comprise more than 25 per cent of the food consumed annually in the United States. It finds that about 10 million people are dependent upon the dairy industry for their living and that about 15 per cent of all farm cash income is derived from milk. The study places the value of the annual output of the industry at 7 billion dollars which is quite a lot of dollars. More trucks, 190,000 of them, are used in the distribution of milk than in the distribution of any other commodity.

The recitation of super-powered figures makes an invigorating story but it was when the bankers got down to the question of price that we really began to feel that they had gotten the word. "Fluid milk prices in July 1948," the report said, "had increased only 74 per cent since August 1939 as compared with an increase of about 132 per cent in the retail prices of all foods consumed by the average family."

Some time ago the *American Milk Review* suggested that it was about time that someone said something good about the dairy industry. This issue of *The Index* is a lot better than a poke in the eye with a sharp stick. In fact it is just about the most encouraging thing we have seen in a long time.

Try this easy way to make a more salable chocolate-flavored dairy drink

Economical new powder contains a carrageenin-based stabilizer

IT WILL NOT "SETTLE OUT"

● ***FINER FLAVOR*** . . . a deep-down delicious "chocolaty" taste that kids and grown-ups love. Kraft Stabilized Chocolate-Flavored Powder is a superb blend of top-grade, finely-ground cocoa and sucrose . . . brought to a peak of flavor perfection by a dash of salt and vanillin.

● ***LASTING SUSPENSION*** . . . this finer Kraft product contains a carrageenin-based stabilizer. *It will not "settle out"*! There is no thick, dark cocoa deposit at the bottom of the bottle . . . no watery separation at the top. You get just one rich chocolate color and flavor all the way through!

● ***LOW VISCOSITY*** . . . drinks made with Kraft Powder have the *same viscosity as fluid milk*. They pour out smoothly, leave on the tongue no filmy, sweetish after-taste to destroy the appetite for "seconds."

● ***EASY TO USE*** . . . no mess, no bother. No sticky syrup to scrape from the sides of a jug or tin. You can get the last spoonful of powder from its container. Quickly and easily soluble.

● ***ECONOMICAL*** . . . the price is amazingly low. Convenience and ease in handling save time and money in manufacturing. Always uniform, Kraft Stabilized Chocolate-Flavored Powder never fails, when properly used, to produce a delightful, fast-selling chocolate-flavored drink.

Find out more about this amazing product. Call or write the Kraft branch in your area today. Once you try it, you'll agree that Kraft Stabilized Chocolate-Flavored Powder makes a better dairy drink . . . easier. Kraft Foods Company, Department AM-3, 500 Peshtigo Court, Chicago 90, Illinois. Branches in all principal cities.

KRAFT

STABILIZED CHOCOLATE-FLAVORED

POWDER

for making chocolate-flavored milk drinks

ROBERT BEAR STOLTZ

Portrait of a Dairyman

BEYOND THE TURKEY RIDGES of the Alleghenys, the tangled wilderness of the Appalachians gives way to the broad fertile plain of Ohio. Often described as a land flowing with "milk and honey," Ohio is one of the great dairy States of the nation.

Robert Bear Stoltz was an Ohioan and a dairyman. Although he spent most of his life on the campus of Ohio State University at Columbus the influence of his teaching and the impact of his energy affected the course of the dairy industry from one end of the country to the other.

Professor Stoltz joined the faculty of Ohio State's College of Agriculture after his graduation in 1912. He was made a full professor in 1923 and in 1929 became chairman of the department.

Professor Stoltz was a teacher and the classroom was a continent. He was concerned with butter and cheese and milk but he was more concerned with men. Early this year Professor Stoltz remarked "For the past 13 or 14 years I have personally given most of my time to attempt to impress upon the student's mind the fact that he must be able to get along with his associates and sell himself to his employer and the consumer." "The training of young men for the dairy industry," he said, "is somewhat like setting out a forest. The men that graduate from the university need a great deal of attention after they go into the industry."

But if he was an educator and a student he was also a practical dairyman. In Columbus they have a universal bottle system that really works. The system bears the hallmark of R. B. Stoltz. He was secretary of the Ohio Swiss Cheese Association and also of the National Cheese Association. He devoted a great deal of time and energy to the Columbus Milk Dealers Association and for a number of years served as the organization's secretary. In 1934 he headed the American Dairy Science Association and was secretary-treasurer from 1936 to 1948. In addition to all of these he served as a member of the Advisory Council of Sealtest, Inc.

Professor Stoltz died on October 2. There will be other men to take his place and the milk from five million farms will continue to flow through the intricate processing channels to the nation's door steps. But there will be a difference, the difference that is always there when a strong friend takes his leave.

Reliable!

Milk plants exerting every effort to meet the urgent need for greater milk volume and higher quality make sure that their patrons use only Rapid-Flo Fibre-Bonded filter disks. It's the brand they know will *always* provide a reliable Farm Sediment Check-up, safely removing dirt that may get into milk in spite of all precautions, and providing the farmer with a daily guide to better milking practices.

For higher grade milk and milk products, to avoid possible rejections and loss of milk, insist that your producers use the right size and type Rapid-Flo Fibre-Bonded filter disk for their strainers. Carry an ample stock on hand. Remind your field men and haulers to make sure that your patrons have plenty of Rapid-Flo filter disks.

Fibre-Bonded RAPID-FLO FILTER DISKS

Both are J&J Fibre-Bonded

RAPID-FLO

Without Cloth Face

for added protection

- Safely removes extraneous matter that may get into milk in spite of all precautions.
- Provides a reliable Farm Sediment Check-up, indicating possible causes of dirt in milk, suggesting corrective steps.

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CONSUMERS AND CHOCOLATE MILK

By **BENJAMIN P. FORBES**

President, The Benjamin P. Forbes Co.

AFTER HALF A CENTURY in the chocolate industry, I believe I am safe in saying that eight out of every ten persons like chocolate. Only one other flavor at the soda fountain ranks with it in popularity, with young and old alike.

Pure chocolate, however, is seldom eaten alone. To make it palatable it is necessary that some other substance be added, such as sugar, vanilla and sometimes spices. Pure chocolate is a paste that is formed by grinding "cocoa nibs." Cocoa nibs are the broken pieces of the cocoa bean after cleaning, roasting, cracking and fanning out the hull or cocoa shell and separating the hard, gritty and insoluble sprout or germ found in the stem end of every cocoa bean.

In order to use the chocolate paste, or liquor as it is known in the trade, it is first necessary to remove some of the fatty portion of the bean. This is known as "cocoa butter." This is accomplished by means of powerful hydraulic filter presses. After the desired amount of cocoa butter has been extracted, the "cocoa-cake" is removed from the press in the form of a hard circular block about two inches thick and fifteen inches in diameter. It is then reduced to an almost impalpable powder in an attrition mill, and wind-sifted to bring it to the desired fineness for use in the preparation of flavoring powders or syrups for use in the dairy.

Blend Cocoa and Sugar

These flavors were originally made by blending cocoa and sugar with sufficient water to make a syrup. These syrups were then sealed in cans or jars until ready for use. Chocolate syrup thus made always moulds and sours after a few days exposure to air, and syrup which has started to sour always gives trouble when added to milk no matter how good the milk may have been.

In order to prevent spoilage, it became necessary to add a preservative and this generally changed and flattened the flavor. Attempting to correct this defect, some manufacturers added high synthetic flavors and much sugar.

It was in the winter of 1925 in St. Petersburg, Fla., that I first came in contact with a dairy that was dispensing chocolate milk. In those days men and women were equipped with good strong right arms, and when they bought a bottle of chocolate milk they wanted to see what they were getting. Before shaking the bottle they would carefully inspect it to see how much chocolate there was in the bottom, and the thicker the layer, the better they were pleased, just as we used to look for a deep cream line on the bottle of milk in the days before homogenization and the paper container.

BENJAMIN P. FORBES

Non-Settling Chocolate

Then came the idea of making a non-settling chocolate milk. Different systems were employed with varying degrees of success. Starches and gums were perhaps the most commonly used stabilizers at first. Derivatives of carraghen are now quite extensively used.

With World War II came food rationing and consequently many changes in formulas. The amount of chocolate in the mix was cut and often imitation cocoa used. Dextrose was substituted in part for sucrose, and all materials were made to go as far as possible. A hungry populace accepted chocolate products, at times of dubious origin, and demanded more. Then came the end of the war and the return of competition, although by no means a return to normalcy. The removal of wartime controls started a spiral of inflation which affected cocoa as well as practically everything else. Cocoa beans which were plentiful before the war at 9-11 cents per pound advanced to 53 cents and the price of chocolate flavors followed the rise of raw materials, but fortunately not in the same proportion. Although the price of cocoa beans remains at more than four times the former cost, there seems to be no let-up in consumer demand for chocolate. One thing, however, is noticeable—the consumer is no longer willing to accept *any old chocolate*. He is demanding quality and is willing to pay whatever it is worth.

Chocolate syrup for dairies is prepared by blending coca, sugar, flavor and stabilizer and cooking them together in water. Chocolate dairy powders are prepared in the same manner with the exception that no water is added and therefore the material may be shipped in a more concentrated form in less costly packages such as barrels, drums, cartons or multi-walled paper bags. Whether the dairyman uses powder or syrup, the quality depends upon the kind of materials entering into the mixtures and the dependability and skill of the manufacturer.

For centuries the nutritious quality of chocolate has been recognized and lauded by both physicians and laymen, but occasionally we hear of a person who for one reason or another is unable to assimilate it. Fully as often we hear of people who cannot tolerate milk or butter; in fact, two of my granddaughters are allergic to milk and butter. Obviously they are allergic to chocolate milk.

Chocolate contains small portions of the alkaloids, theobromine and caffeine. Yet I can truthfully say that I never met a person of whom it could be said that he was a chocolate addict. Some physicians recommend chocolate for children, others condemn its use, especially in the evening, on account of the diuretic effect of the theobromine.

Just Tell the Truth

There are so many good points to chocolate that we need only tell the truth in advertising it and we will find a friendly attitude growing among the members of the PTAs, the medical profession and school dieticians.

In order to write intelligently and objectively on the consumer acceptance of chocolate milk, I decided to go directly

to a cross section of the dairy trade, large and small, confining my correspondence to the eastern part of the United States, and to both customers and non-customers. To date I have received replies from about fifty per cent of the dairies addressed, and on these I have based my deductions.

Questions and Answers

The questions asked and the replies received were as follows:

Q. 1. In preparing chocolate milk what per cent butterfat do you consider most acceptable to the consumer public?

A. 5% said 1%; 60% said 2%; 35% said 2½ to 3½%.

Q. 2. Is the consumption of chocolate milk increasing or decreasing as shown by your records.

A. 40% increasing; 25% decreasing; 15% even; 20% no comment.

Q. 3. What change has taken place in sales since 1945?

A. 60% reported average 33% decrease; 40% reported 47% increase.

Q. 4. What percentage of sales is due to your own reputation and sales effort?

A. Average 92.1%.

Q. 5. What percentage of your chocolate sales would you attribute to publicity of the firm supplying you with chocolate?

A. Average 8.3%.

Q. 6. What percentage of sales can be credited to the quality of the materials used?

A. Average of 73.3%.

Q. 7. What percentage of your chocolate is consumed by adults?

A. Average 26.2%.

Q. 8. What per cent by children?

A. The average was 73.8%.

Q. 9. What is the greatest influence on consumer acceptance?

A. 90% indicated flavor.

Q. 10. What shade of color is preferred?

A. Dark brown, 6.7%; medium or reddish brown, 60%; and 33.3% preferred a light milk chocolate shade.

Q. 11. What flavor is most acceptable: (a) A true chocolate like a milk chocolate bar. (b) Chocolate modified by use of a mild vanilla type flavor. (c) High synthetic flavor.

A. 60% preferred a true chocolate flavor; 33.3%, modified; and 6.7%, highly sweetened and flavored.

Q. 12. What can the chocolate manufacturer do to further encourage an increase in the regular use of chocolate milk?

A. Several suggested "Keep quality high."

One dairyman suggested that the chocolate flavor manufacturers might get out advertising pamphlets for distribution in schools to show the healthfulness of chocolate and its food value.

Another suggested signs for stores and still another, "Reduce price and advertise." One dairyman who did not wish to be classed as a "dry" said he would welcome a return of prohibition as the sale of beer was cutting deeply into the sale of milk. Soft drinks were also said to be responsible for some loss in the sale of chocolate. Experience shows that when school children are given a choice between white milk and a good bottle of chocolate milk, the chocolate outsells the white milk 5 to 1.

One dairyman writes, "Try not to cut the quality of chocolate during the high price and inflation period we are going through." He further suggests that the manufacturers try to bring to the Home Economics classes in the public schools and cooking classes, pertinent facts as to the value of chocolate in the diet, and also the history of chocolate, either in printed form or by lecture, or both. "In salesmanship," he continues, "they teach us to educate the public. That would mean that the manufacturer and we as distributors have to see that the public becomes chocolate minded."

A large Florida dairy reports the local market flooded with canned chocolate milk, 10 or 12 ounce cans, which sell for a dime. Also that school cafeterias have replaced chocolate with white milk. That where they formerly sold 200 gallons of chocolate per day to schools, they now sell only white milk. This dairyman goes on to say, "Since the lessened demand for chocolate is due mainly to its failure in the schools, I believe that the manufacturers could render a signal service in selling the *nutritional* factor back to the school dieticians. Studies show that milk solids play the major role (even skim milk chocolate has all the solids) plus the fact that the children will consume much more chocolate than white milk over a given period." He further states, "There are many children who refuse white milk and therefore get no milk when the schools refuse to put in chocolate milk."

Another dairy writes, "Advertise value of chocolate milk as a food and a substitute for milk diets." Another suggested leaflets for enclosures with bills and personalized circulars bearing the name or picture of the route man.

Buy U. S.
Savings Bonds

At the Labor Day National Air Races in Cleveland recently, Major Richard L. Johnson, an air force test pilot flew an F-86 jet fighter plane before an audience of 60,000 spectators. He beat the world's record by 20 m.p.h. with a speed of 669.75 m.p.h. His record was set aside because of a mechanical error on the ground. The official photographic machinery had only caught three of his six passes over the speed course, and the rules of the association specify that four passes must be shown in the photographs to make the record official. So it often is with chocolate. The manufacturer may have taken the utmost pains in selecting only fine ripe well cured cocoa beans, cleaned them with scrupulous care, roasted them to a turn and ground them to velvety smoothness to produce a prize winner, only to have the finished product spoiled by some ignorant or careless person who combines it with milk of poor quality. As one dairyman tersely expressed it, "A chocolate is no better than its poorest ingredient."

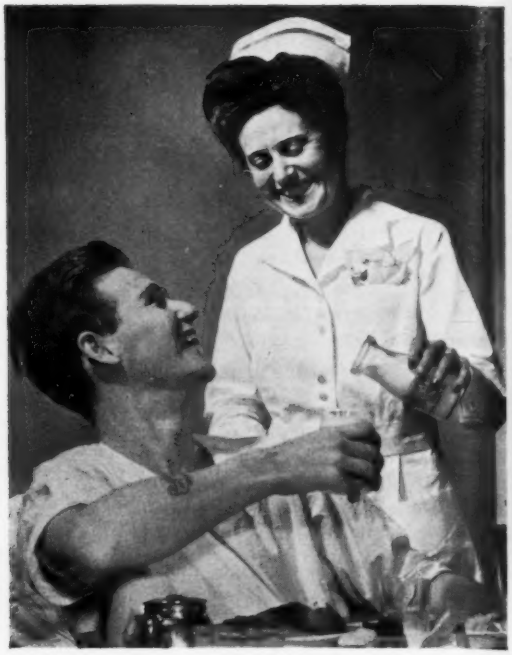
According to a report from the Milk Industry Foundation, United States Department of Agriculture, the total consumption of fluid milk for the year 1946 in the United States was 57,003,000,000 quarts. Of this quantity, 22,326,000,000 quarts were consumed as fluid milk in cities, towns and villages. Just what percentage of this vast figure represents the amount that was processed and sold as chocolate milk, I am unable to state but that the figure is impressive, there can be no doubt. There has just come to my desk, however, a report from the Cleveland Marketing Area, giving the relation of milk to chocolate milk sales for the last four months of 1946, 1947, and the first six months in 1948 which shows that the average for 1946 was 2.77%; for 1947, 2.7%; and 1948, 2.57%. If this last percentage should hold good in the case of the 22,000,000,000 quarts sold in cities, towns and villages throughout the United States, and the average price of chocolate milk sold should be 25c per quart, we have a figure of over $150,000,000 being spent for chocolate dairy drinks by the consumers in America.

If it is true, as reported in the news recently that the American public spent last year for liquor, tobacco and cosmetics more than all the money spent in rentals for housing including the rental value of homes owned by the occupants, then it is evident that people will have what they want regardless of cost. Therefore the manufacturer of chocolate and the dairyman must determine how they can best serve the consuming public, keeping in mind this familiar bit of philosophy:

"He profits most, who serves best."

Milk

GOES *to a*



Every patient at the Veterans Hospital in Newington, Connecticut, gets a half pint of milk three times a day. From the looks of things they like it too.

VETERANS HOSPITAL

By **NORMAN MYRICK**

THREE TIMES a day, 365 days a year, the three hundred patients at the United States Veterans Administration Hospital at Newington, Connecticut get a half pint of milk. And, says Mrs. Esther Woodruff, Chief Dietitian, "They like it. If we took it away there would be a small sized riot."

The Veterans Administration Hospital at Newington, a general medical and surgical unit, is one of 126 hospitals scattered throughout the nation. In addition to general medical and surgical, the Veterans Administration also maintains tuberculosis and neuropsychiatric hospitals and domiciliary establishments.

The Newington Hospital, situated on 206 pleasant Connecticut acres, has available, under emergency conditions, 352 beds. Ordinarily, however, patient numbers average between 300 and 310 veterans.

Described by a Spanish-American War veteran as the "greatest healing establishment in the world" the Newington Hospital has a staff of 462 employees engaged in administrative and professional activities. Included in this number are eleven staff physicians and 36 resident doctors who are training for their specialties. This specialist program is under the supervision of the Dean's Committee of the Yale University School of Medicine.

Milk occupies a prominent role in the hospital's dietary planning. Major portion of the milk supply is 1200 half pints of homogenized per day. In addition, the hospital receives 120 quarts in bulk for cooking and cereal use, plus 24 to 30 quarts of light cream. Special diets are taken care of by 2 gallons of skim and 2 quarts of buttermilk per day.

The milk is held at 40 degrees in the hospital storage room. Empty bottles are washed at the hospital and picked up each day by the dairyman having the milk contract. Breakage is remarkably low and when it is considered that over and above ordinary wear and tear each half pint bottle is placed on a tray, carried to the patient's bed and the empty container returned to the washer, the low breakage experience becomes phenomenal.

Milk is purchased on the basis of a three months contract. Occasionally a dairyman will bid on a six months basis, but low margins make price fluctuations a hazard that most handlers do not care to challenge longer than the quarterly period.

Bids are open to any dairy firm that can meet the specifications and can guarantee delivery. Although local handlers usually make the bids, the privilege of bidding is unrestricted. One hospital in Rutland, Massachusetts, for example, is supplied with milk by a dairy company in Woonsocket, Rhode Island, a distance of about forty miles from the hospital.

Bid forms are mailed out to milk dealers who have informed the hospital officials of their desire to be on the mailing list. Notice of the bidding opportunity is posted in "Public Buildings" which usually means U.S. Post Offices. At Newington the bidding has been a spirited business with an average of six firms seeking the contract each quarter. According to law the lowest bid made must be accepted, providing, of course, that the bidder can meet the terms of the contract. Prices are usually carried out to four decimal places. On the most recent bidding session a 3 per cent discount for thirty days was the factor that captured the contract. The plant and

(Please turn to Page 77)

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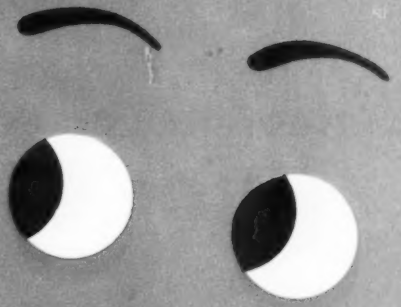

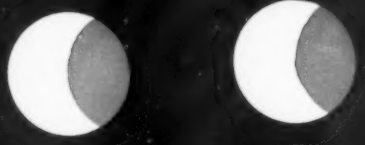

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"Observations on Rough or Spotty"
HOMOGENIZED MILK

By G. M. TROUT and J. ROBERT BRUNNER
Michigan Agricultural Experiment Station

HOMOGENIZED MILK properly processed and handled is smooth and homogeneous. This characteristic manifests itself in the partially emptied glass or bottle. When some of the milk is poured out, the film left behind on the glass drains so well that the glass appears clean above the milk-surface line. Probably the same capillarity which results in seepage (3) is responsible in part for this superior drainage from the glass surface. Regular users of homogenized milk come to appreciate the clean appearance of the glass in contrast to the greasy film commonly observed on the inner surface of a partially emptied glass of nonhomogenized milk. Consequently, any roughness, spottiness or lack of smoothness within the milk as revealed on the surface of the glass is likely to bring complaints from customers. In such cases, a check on the bottled milk itself may reveal a ring-like film on the surface adjacent to the glass, or may show foam adhering to the bottle closure. This film is dissimilar to that produced by cream which sometimes appears on inadequately homogenized milk, is light in color, lacks smoothness, and seems to be more characteristic of precipitated milk protein.

Examination of the bottled milk having this defect showed the milk to have a normal viscosity unlike that previously reported (2), but a rough, slightly granular foam was found adhering to the under side of the cap. At the milk surface adjacent to the glass was a narrow ring of loose, cream-like material extending out from the glass about one-eighth inch. Upon tilting the closed container, this substance seemed to follow the air-space bubble leaving deposited on the glass tiny specks, as shown in Fig. 1. The specks appeared larger than they actually were inasmuch as capillarity drew and attached to them some milk. When the milk was poured from a glass, the soiled-glass surface presented a particularly rough, curdy appearance. Children associated this roughness with the milk and in some instances actually refused to drink it.

Further examination of the milk under a stereoscopic microscope with 42.5× magnification showed the presence of many semi-translucent spherical pellets. These pellets varied in size, the larger ones being barely macroscopic. Intermixed was considerable solid material, amorphous in character, thought to be chiefly protein which probably resulted from collapsed air-cell walls, since the defect was associated more or less with foaming. By means of a needle the spherical pellets could be moved intact from the liquid surrounding them to the dry area of the glass slide, where they could be studied separately. Here they appeared gelatinous and sticky and spread under pressure, offering little resistance. After some exposure to heat, the serum surrounding the pellets dried, and the pellets themselves flattened as the semi-solid material changed into a translucent liquid. The oily liquid readily took the fat-soluble dye, Sudan III. All observations indicated that the tapioca-like pellets causing the trouble were fatty in nature. However, fat tests from top and bottom portions of the sample showed the milk to be well homogenized. In fact, in analyzing homogenized milk exhibiting considerable fat rising, the writers had never before encountered such a defect as that reported herein. The pellets were well out of the microscopic micron size of fat globules and approached the macroscopic granule size.

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Sequence of Processing

The sequence of processing the defective milk consisted of clarifying, preheating, homogenizing, high-temperature short-time pasteurizing, cooling, and bottling. The processing system was essentially a closed system except (a) during homogenization, when the milk was conducted from the pre-heating section of the pasteurizer to an open surge tank from which it entered the homogenizer, and (b) in the surge tank ahead of the bottlers. Considerable foam gathered at the surface of the milk in the surge tanks. However, a sufficient head of milk was maintained so the macroscopic foam could not be occluded in the milk. Nevertheless, there was a possibility that some air might have been homogenized into the milk giving rise to a microscopic foam. From the pasteurized milk surge tanks to the bottlers was a distance of approximately 15 feet and a drop of about 6 feet. Two fillers, a vacuum and a gravity-flow, were used. Some difficulty was encountered with foam in filling the bottles by either machine, but the rough, spotty defect appeared worse in the milk filled with the vacuum filler.

Microscopic Examination of the Milk

Inasmuch as the gelatinous, tapioca-like pellets were always observed in the rough-appearing homogenized milk and seemed to be foreign to that product, inquiries were made to ascertain whether a stabilizer or any other foreign substance might have been added. Such was not the case. A detailed routine microscopic examination was made of the milk at various steps of processing. The results are shown in the accompanying table.

From the data in Table 1 it should be noted that the pellets causing the difficulty were not observed during the various stages of processing until the milk reached the filling machines. Examination of the milk in the filling machines showed the presence of a rough, granular, swirling foam, portions of which evidently were being entrapped with the incoming milk and hence carried into the bottles. This foam was heavily seeded with the pellets in question.

Realizing that properly homogenized milk cannot be

Table 1—Examination of milk at various stages of processing

Nature and source of sample	Presence of pellets in the sample*
Raw, holding tanks	—
Raw, beyond clarified	—
Raw, preheated	—
Raw foam, surge tank ahead of homogenizer	—
Preheated, homogenized	—
High-temperature short-time pasteurized	—
Pasteurized, cooled	—
Foam on pasteurized milk surge tank	—
Milk at entrance to filler reservoir	—
Bottled milk	—
Vacuum filler	+
Gravity filler	+

*Key —No pellets present.
+ Pellets present.

churned except by prolonged rigorous agitation and then only in part, an investigation was begun to ascertain how the pellets came to exist in the filler reservoirs. Evidence pointed to the facts that nonhomogenized fat had been introduced into the reservoirs prior to bottling the homogenized milk. Upon questioning the operator at the bottle-filling machines, it was learned that prior to bottling homogenized milk, whipping cream, table cream and half-and-half were bottled. No attempt was made to rinse out the bottle-filling machines between filling operations. Examination of the whipping cream, table cream and half-and-half revealed the presence of the tapioca-like, fatty pellets characterizing the defective milk. A complete dismantling of pipes and a thorough clean-up after bottling the nonhomogenized products eliminated the cause of the rough or spotty texture of the homogenized milk.

Discussion

Too much emphasis cannot be placed on the necessity of having properly homogenized milk free from contamination with a nonhomogenized product if the bottled product is to remain smooth and free from a cream layer of fatty particles. Likewise, foaming must be kept to a minimum, for it may result in partially filled bottles (4) and in a concentration of milk solids resulting from the presence of denatured proteins. Because solid materials migrate to the foam film, more solids exist in the foam than in the liquid from which the foam was derived. Consequently, the collapse of these air cells results in a flaky concentration of denatured milk solids at the surface. Presumably, this is the "Ramsden phenomenon" (3) as suggested by Davies (1).

Much experience has been gained during the last score of years in processing and handling homogenized milk. It seems, however, that the necessity for special precautions in treating homogenized milk is not yet fully appreciated.

Summary

An instance of a rough, spotty homogenized milk causing consumer complaints was found to be due chiefly to the presence of tiny spherical butterfat granules coming from creams bottled prior to bottling of the homogenized milk without cleaning the equipment. The defect was attributable in part to foaming.

Dismantling and cleaning the equipment after bottling the nonhomogenized product eliminated the condition causing the defect.

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Types of Material in ACCUMULATED DUST AND FINE DEBRIS

By T. J. CLAYDON

Kansas Agricultural Experiment Station

Manhattan, Kansas

IN WINDY WEATHER MUCH DUST, soil, and other fine debris, normally too heavy to be air-borne, are carried by gusts of wind and may be blown into dairy equipment or exposed milk or cream. Dust on rafters, ledges, or window sills may be jarred or blown off into open containers and contribute to the milk and cream sediment problem. With the present practice of examining sediment microscopically and emphasizing its nature as well as its quantity, the types of material usually present in dust and fine debris around dairy establishments become important.

Investigation (1) has shown that many of the same types of extraneous matter reported in sediment tests of cream for buttermaking are present in the air around farms, cream stations and creameries, and may contaminate exposed equipment and products. It was also shown (3) that empty shipping cans in cream stations contained similar types of material and generally in the same proportion as in the air, suggesting that much of such sediment was accumulated air-borne material.

Since accumulated ledge dust and other fine debris are partially a result of sedimentation from air and at the same time are an intermediate source of the material carried by air, it would be expected that such dust and debris would contain similar types of particles as have been found in air. Accordingly examinations were conducted to determine the nature of accumulated dust and fine debris around dairy establishments.

In the initial examinations, samples of dust and fine debris were obtained from farms, stations, and creameries during the fall of the year. A more extensive study of cream stations was made the following summer, when most of the samples were obtained with the assistance of the Dairy Division of the Kansas State Board of Agriculture. Samples consisted of approximately one-half gram of material scooped into small envelopes, sealed, labeled, and returned to the laboratory. The samples were obtained from various points considered as potential intermediate sources of air-borne material. Such locations included window sills, rafters, and other surfaces as well as ground areas adjacent to corn cribs and feed bins, barns, cream stations, and creameries.

[1] Contribution No. 180, Department of Dairy Husbandry.

[2] This study was supported by a grant from Swift and Company, Chicago, Illinois.

KIDS LOVE IT

There has been an exceptionally sharp increase in the sales of ice cream in movie houses in the United Kingdom, even during wintry weather!

About one-quarter gram quantities of the samples were examined microscopically in the laboratory with a wide-field microscope having magnifications of 21.2 ×, 42.5 ×, and 85 ×. The material observed was grouped into 10 general types (table 1). Samples were checked as positive for each type found, irrespective of the number of particles present.

Microscopic Examinations Made

Microscopic examinations were made on 80 dust samples from 3 creameries, 6 farms, and 40 cream stations. The creameries and farms were located in 3 different counties and the stations in 25 counties. The different types of material listed in table 1 were found in the samples.

It is evident that the types of material present in dust and fine debris around dairy establishments are similar to those periodically reported in cream sediment. Of the 80 samples examined, practically all types of material listed were found frequently, with vegetable parts, sand, coal dust, and fibers being most prevalent. The incidence of positive samples for these materials was: vegetable parts, 97.5 per cent; sand, 92.5 per cent; coal dust, 82.5 per cent; and fibers, 76.2 per cent. More objectionable material including insect parts, feather parts, rodent-like hairs, and other hairs were also common, being found in 38.7, 50.0, 53.7, and 67.5 per cent of the samples respectively. Metal parts were present less frequently, appearing in 33.7 per cent of the samples.

Each type of material was found in samples from farms, stations, and creameries. Rodent-like hairs were found most often in the farm samples, while insect parts were observed least in the station samples. Although metal parts were common in the station samples they were seldom found in the farm and creamery samples. Coal dust and fibers were found least often in the farm samples. Since the number of samples, particularly from farms and creameries, is limited and since they were not taken at the same time or in the same areas for each class of establishment, comparisons among farms, stations, and creameries should not be emphasized.

Table 2 shows the incidence of samples positive for the different types of material in dust, compared with samples from air around dairy establishments and from empty shipping cans in cream stations as found in previous studies (2), (3). All types of material, except the unidentified, were found more often in dust and debris than in air. The average incidence of samples positive for insect parts, however, was only slightly higher. With the additional exception of metal, the dust and debris also showed a higher proportion of each type than was found previously in empty cans.

Variations According to Location

It is evident that accumulated dust and fine debris from ledges, and from ground surfaces adjacent to farm and dairy buildings, contain undesirable types of material from the standpoint of dairy products. The entrance of such material into milk and cream or dairy containers would adversely affect the sediment problem. In farm samples, the relatively high incidence of rodent-like hairs is probably due to the prevalence of rodents and cats around corn cribs, feed rooms, and barns. The lower incidence of coal

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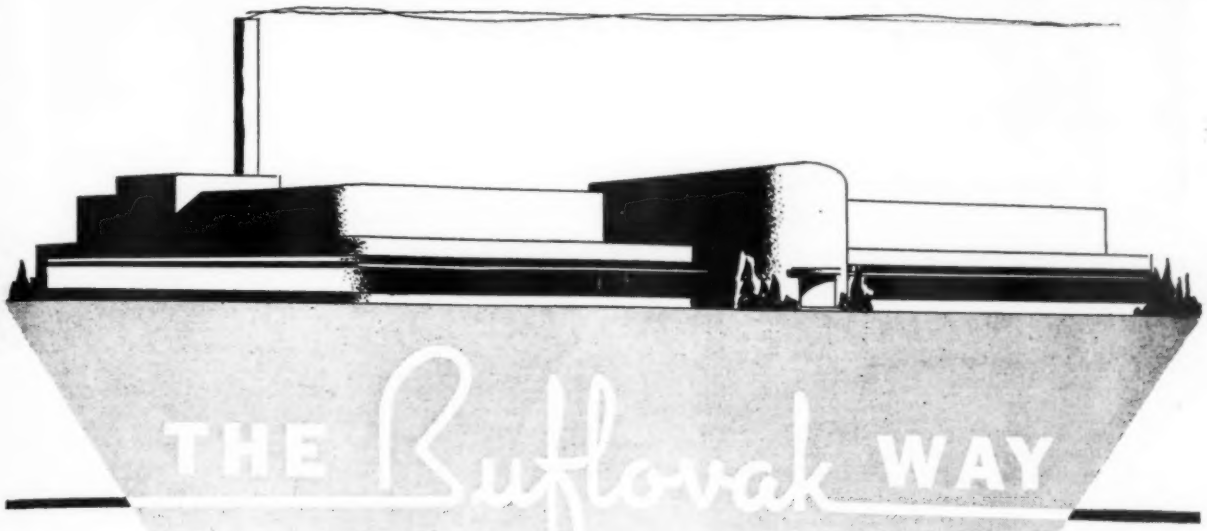

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DR. ROBERT F. HOLLAND

Problems of the Industry

DR. JAMES C. WHITE

Dr. Robert F. Holland and Dr. James C. White, both of the Department of Dairy Industry at Cornell University, conduct their question and answer column each month in the "Review". Questions should be addressed to either Dr. White or Dr. Holland, Department of Dairy Industry, Stocking Hall, Cornell University, Ithaca, N. Y.

●

Leucocyte Count

QUESTION—Our plant inspector reports that the leucocyte count on our milk is running very high. Will you kindly explain the significance of this? We have a microscope for making bacterial counts on our raw milk; could this be used for counting leucocytes for our own information?

M. K. S., Pennsylvania.

ANSWER—Leucocytes or white blood cells are present in all normal milk in varying numbers. It is generally considered that the leucocyte count may be used as an indication of the health of the udders of the producing cows. When the udder is injured or infected with mastitis, the leucocyte count increases and by running periodic cell counts a check may be maintained on udder health.

Opinions vary as to what count may be considered normal and what abnormal. However, many health departments have taken the figure 500,000 per ml as the dividing line. Counts above this are taken to indicate unhealthy udder conditions in the producing herds.

Since you are accustomed to making direct microscopic bacterial counts, you should have no trouble in counting leucocytes. The slide is prepared in exactly the same manner by spreading 0.01 ml of the well mixed fresh sample over an area of 1 sq. cm., drying, extracting the fat with xylol fixing in alcohol and staining in methylene blue. One of the combination stains, such as the Newman-Lampert, may be used if desired.

The leucocytes are larger than bacteria so that it is not necessary to use the oil immersion objective for counting them. Count the cells in at least 10 fields and express the results as leucocytes per ml.

I trust this gives you the information you desire. If you have further questions, please feel free to contact us.

Vegetable Rennet

QUESTION—I learned a study was made at your University in 1924 and discovered Rennet made of Vegetable which is used in cheese making. I would greatly appreciate it if you would let me know where I could obtain some to be used for cheese making.

R. S., New York.

ANSWER—There are a very large number of plants which contain enzymes of a rennet-like nature. They are spread over all the continents and are readily available. As far as we know, no experimental work on these materials has been done at Cornell University, and there is only one reference in the literature which we can find which relates to the subject. This article is in "Le Lait," volume 15, page 354, 1935, and is written by C. Christen and E. Virosoro. In this article they tell of making a plant enzyme by extracting the flowers of the Spanish thistle. They obtained an enzyme preparation of a potency approximately equal to calf rennet and which was satisfactorily used for the preparation of Camembert cheese. It was suggested that the enzyme might replace animal rennet without disadvantage in the making of most types of cheese. As far as we know, this enzyme is not available commercially from any source but directions for its manufacture are contained in the French article.

●

Henry H. Rathbun

More than nine hundred persons attended the funeral of Henry H. Rathbun, President of the Dairyman's League Cooperative Association held at New Hartford, N. Y. on October 4. Mr. Rathbun, who climaxed a life time of work with the League by becoming its President in 1945 died suddenly in Des Moines, Iowa on September 29.

A national figure in the dairy industry, Mr. Rathbun was born in New Mexico. Most of his early days were spent in Kansas although he received his advanced education in Indiana. Following the completion of his formal education he purchased a farm in Oneida County in New York State and embarked on the career that carried him to the top position in one of the largest cooperatives in the nation.

In eloquent tribute to their former leader the Board of Directors of the Dairyman's League Cooperative Association adopted a resolution at the Association's annual meeting October 13 which declared in part:"

He joined our Association in its early days and by successive steps from active worker became County President in 1924, Director in 1926, member of the Executive Committee in 1928, First Vice-President in 1935 and President in 1945. This rise was highly merited because of his rare ability, his power to make friends, his spirit of good will to all, his intense industry and devotion to the duties entrusted to him.

Connecticut Council Election

A. C. Fisher, managing director of Bryant and Chapman–R. G. Miller & Sons, was re-elected president of the Connecticut Dairy and Food Council for the coming year at the 26th Annual Meeting held September 22 at the New Haven Country Club.

Donald E. Thomsen of the Wholesale Milk Producers Association was re-elected vice-president; Charles G. Morris of New Haven was re-elected honorary vice-president; Prof. E. O. Anderson of the University of Connecticut was re-elected

Group attending the Connecticut Dairy and Food Council's 26th Annual Meeting pause and oblige the photographer for this picture. Ken E. Geyer, General Manager, Conn. Milk Producers Assoc.; Dona'd O. Hammerberg, Connecticut Milk Administrator; E. M. Harmon, Eastern Regional Representative, National Dairy and Food Council; A. C. Fisher, President Conn. Dairy and Food Council, Inc.; Lyman Hall, President, Conn. Milk Dealers Assoc.; and Frank Peet, Deputy Commissioner, Dept. of Farms and Markets.

treasurer; and Dr. Stewart Johnson of the University of Connecticut was re-elected secretary.

Elected to the Board of Directors for a one-year term were: Warren A. Chapman of Hartford; C. Raymond Brock of Hamden; John Lyman of Middlefield; Adrian Wadsworth of Farmington; and Arthur Rowe of New Haven. Herbert C. Cray of New Haven was elected to the Board of Directors for a three-year term.

Dr. Joseph I. Linde, New Haven Health Officer, was the guest speaker and he commended the Dairy and Food Council for the part they are playing in the health education of the public.

Mr. Fisher praised the work that Miss Marian L. Arnold, nutrition director of the Council and her staff had accomplished during the past year. E. M. Harmon of the National Dairy and Food Council spoke of the outstanding work that the Connecticut Council has done in the New England area.

•

Mastitis Detectors to South Africa

In the long list of exports recently made is to be found an item of 50,000 of The KO-EX-7 Brom Thymol Mastitis Detectors, shipped to Milborrow and Company of Pietermaritzburg, South Africa.

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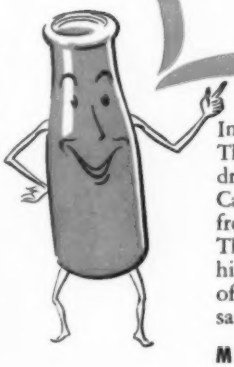

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our handling costs show a drop that MORE than pays the entire cost. BEST OF ALL, we haven't had a can of Mastitis Milk in months. The KO-EX-7 Plan is SAVING US MONEY EVERY DAY. Just read what Arcade Farms Cooperative says —

"The best services we can render our 300 Producers is to supply them with those KO-EX-7 Mastitis Detectors and have every cow tested. We feel the increased demand for our product is largely due to our Mastitis Control Program."

ARCADE FARMS COOPERATIVE, INC.
WM. SADLER, Manager

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ECONOMICS OF DAIRY PLANT LABOR

By **EMANUEL L. BAUM**

TRAINED WORKMEN and contented workmen are the keys to efficient dairy plant operation. Without exception studies have shown that contented workers yield a greater output per unit of time. It has been shown, also, that the best way to keep a man contented with his job is to pay him as much or more than anyone else will pay him. However, unless a man is adequately trained he cannot expect to command, nor can the employer expect to pay, high salaries. Training and good wages go hand in hand. Higher pay is an incentive that encourages employees to profit to the fullest from training programs in order to qualify for the additional compensation while the increased labor expenditure to the plant operator is more than offset by the increased efficiency of the workman. Incentives to work for higher salaries at jobs performed efficiently is a round about way of having employees make more money for the plant and the operator.

The dairy situation is critical today because costs that must be met by plant operators are still rising. In the present strong labor market men of little experience can command high wages. The use of unskilled labor in as highly a technical industry as the market milk industry usually makes for inefficient labor use and relatively low labor returns. This situation becomes still more critical in markets where dairy plant labor is unionized. Confronted with this problem the only alternatives open to the operator is train his help quickly and efficiently.

The solution to this problem requires a thorough examination of the individual plant's labor operation. On the basis of information revealed by such a study an effort must be made to build up a strong and efficient labor force. How can this be accomplished?

Specific Solutions Difficult to Prescribe

A specific solution that will completely satisfy each case is difficult to prescribe. In a recent study of dairy firms in a metropolitan milk market it was estimated that plant labor costs represent approximately 35 of the total labor costs in a market milk operation. Since 1945 the cost of dairy plant labor has increased in the neighborhood of 55 per cent. This spectacular increase in cost has had to be absorbed in operating

EMANUEL L. BAUM

margins that have risen proportionately less. The answer to this problem of high labor costs is a greater efficiency in the use of plant labor.

The volume of milk handled is one of the most important factors affecting labor efficiency. Research in this field has revealed a high degree of correlation between labor efficiency and cost per quart of milk handled. Labor efficiency or the cost per quart of milk handled and the use of more labor-saving machinery in the plant, lower distribution costs. But a still greater efficiency can be achieved through a well-planned use of labor.

It is recognized that the volume of milk that a plant operator can successfully handle is somewhat limited by the size of the market. However, volume of milk handled may be increased by the aggressive salesmanship of by-products such as ice cream, cottage cheese and others of that nature. Securing greater labor efficiency through greater plant volume is therefore absolutely dependent on a sales program that brings in the orders.

The use of more labor-saving equipment in the plant entails a technical study by accredited dairy plant engineers. Each situation is dealt with individually. If dairy plant labor is inefficient due to poor plant layout or inadequate equipment, modifications in the plant must be made. A correction here will help costly labor to yield profitable returns to the plant owner.

A third method of securing a more intelligent use of labor is to build up a talented labor force. There is a great laxity among plant owners in this important respect. The ideal situation exists when the plant owner has been trained and fully understands the latest techniques related to the market milk industry.

The ideal situation also calls for all employees to understand the technical aspects of their individual tasks. However, the ideal situation usually does not exist in practice. A concerted educational program that will teach all dairy plant employees the know-how of the technical aspects of the market milk industry is needed.

Understanding Is a Must

In many cases the plant owner does not fully understand the scientific principles involved in dairy plant processes. Furthermore, it is not unusual to find complete plant crews without scientific training. In such a case, the individual plant employee fulfills his task mechanically without understanding just what he is doing. This type of employee is unable to cope with the emergency problems that occur frequently in a day's operation.

It is not necessary that all plant employees study dairy science at one of the many agricultural schools or colleges. What is necessary is that an effort be made to secure at least one scientifically trained individual to work with the organization.

One of the first tasks assigned to such a man should be to organize and educate all plant personnel in scientific know-how, in such a manner, the teaching may be easily grasped. It is preferable that such an educational undertaking be on the company's time. In many cases it may be desirable to run evening classes in the plant. At other times it may be better that some of this schooling be carried on individually during the regular plant operations. This will depend upon the type of work the employee performs during his working hours.

Training Programs Are Few

Few plants at the present time provide a training program. Studies of a metropolitan milk marketing area embracing more than 200,000 inhabitants failed to reveal a single plant that provided for

(Please Turn to Page 74)

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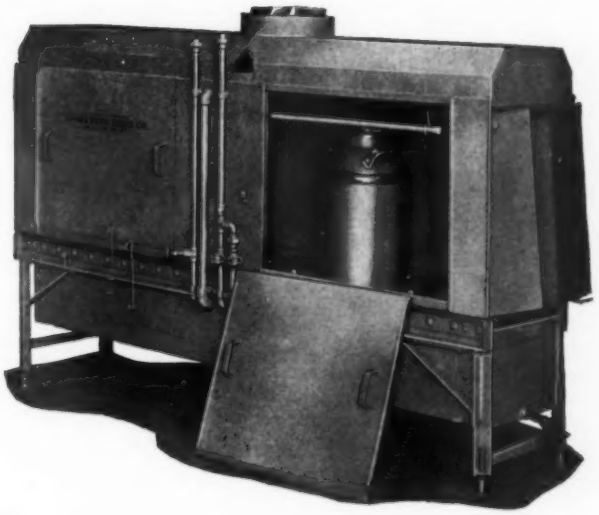

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Cans are fed through on enclosed stainless steel, ball bearing gravity conveyor. Completely thaws frozen milk or cream cans, inside and outside.

Frozen milk or cream is reclaimed resulting in considerable savings in money and time for dumping.

Five sizes; from 6 ft. to 10 ft.

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A TRIP with the EDITOR to MARCUS DAIRY

THE TREES were putting on their annual fashion show up in New England last month and so we naturally tried to combine business with pleasure. Our field trips were confined mostly to Connecticut. The Nutmeg State happens to be home base and, with the big show at Atlantic City scheduled to bite a substantial chunk out of the month's time, we wanted to get as many visits in as possible without traveling too far.

To you folks the other side of the Mississippi, the job of covering a State the size of a blown up postage stamp probably looks like a forenoon task with plenty of time left over for Massachusetts and Rhode Island in the afternoon. As a matter of fact "Bud" Fisher, general manager at Hartford's Bryant and Chapman, tells me that there are in the neighborhood of 1400 milk plants in the State. Not only is that a lot of milk plants for a place that could be put in the Texas panhandle without doing more than superficial damage to that fabulous part of the Lone Star State, but according to reports and what we have been able to see, some of sweetest plants in these United States are up in the Connecticut hills.

Bob Lorrey, who travels for Christian Petersen and Sons, a dairy equipment supply house in Hartford, told us that Michels Dairy in New London is one of the finest dairy plant operations he has seen. We haven't had the chance to visit the establishment yet but are looking forward to the opportunity in the near future.

Over in Danbury, Connecticut, home of the famous Mallory hats and "the great Danbury Fair," there is a new milk plant owned by Jack Marcus. The plant has been handling milk since July and still has a lot of the newness remaining. The story behind the plant and the manner in which the layout contributes to a smooth flowing operation made it our choice for the plant of the month.

It is absolutely amazing how the history of a dairy enterprise follows a pattern. Mallory's in Springfield, Massachusetts, Buttrick's in Arlington, Massachusetts, Downing's in Rock Island, Illinois and Cream Crest Farms in Skokie, Illinois are a few that come to mind. In each case the development has been almost identical down to the number of quarts on the first day on the first route.

The story of Marcus Dairy follows the pattern. Back in 1924 Jack Marcus' father started the business with a farm to doorstep enterprise. Like so many of his contemporaries the elder Mr. Marcus began with a horse, a wagon and a forty quart route. The fact that today Jack Marcus, carrying on where his Dad left off, has 12 trucks, seven routes, and a 5000 quart volume is in the traditional pattern of dairy plant evolution. The one thing that the average layman doesn't see and what every milk handler knows only too well, is that the bridge from 40 quarts to 5000 is built by a whale of a lot of hard work. As Mr. Marcus said, when we talked with him last month, "Who ever heard of a five day week in the milk business?"

The Marcus plant is built a good deal like a horizontal layer cake. The first layer, across the front of the building, is composed of an ice cream and dairy bar, a front office, and a routeman's room. The second layer involves the receiving room, pasteurizing room, refrigerating room, and loading platform. The last layer is composed of the engine and boiler room, and a plant supply—storage room which are built over a spacious garage.

The striking thing about the Marcus operation is the plant layout. Milk comes in one side of the building and goes into the delivery trucks on the other side through a series of operations that are practically in a straight line. The processing procedure is efficient and, furthermore, the amount of piping has been held to a minimum. Holding tank, pasteurizer, homogenizer, heat exchanger,

Located on the outskirts of Danbury, Connecticut close to the famous Danbury Fair, Marcus

clarifier, and cooler are all concentrated in an area about sixteen feet square. In spite of the compact nature of this part of the plant there is adequate space in which to move around and each piece of equipment is readily accessable.

The handling of empty bottles on the other side of the room is equally simple and effective. The bottle washer is located so that the dollies loaded with crates of empty bottles have only a ten to twenty foot ride. From the washer to the filler and back the loading platform is a forty or fifty foot haul all told.

The cleaning process is also simplified by this layout. A portable cleaning unit is moved to a point close to the center of operations and the bulk of the fittings are moved not much more than fifteen or twenty feet. Fittings are handled on flat-topped wheeled tables with trays for the small fittings and racks for pipes. The table was made up according to Mr. Marcus specifications.

The engine and boiler room is another example of good compact layout. In an area twenty feet square are concentrated a 25 and a 50 horse power steam generator, a hot water heater, and three compressors. The 25 horse power generator is a fully automatic oil fired job that comes fairly close to meeting all of the plant's steam requirements. The 50 H.P. unit comes in when the pressure gets below sixty pounds which is usually during the can washing operation.

The three compressors are hooked up so that they can be used collectively as a unit or so that they can be operated singly. As Mr. Marcus pointed out, this arrangement is a sort of insurance policy. The plant is never handicapped because of a broken down compressor. Water for the plant is supplied from an artesian well sunk on the premises.

In keeping with the general compact nature of the individual functions the receiving room and can washer are set up with an eye to conserving space and efficient procedure. The conveyor from truck to weigh can is hardly more than twelve feet in length. The can washer is within arms reach of the weigher and midway between the wall openings for incoming and outgoing cans.

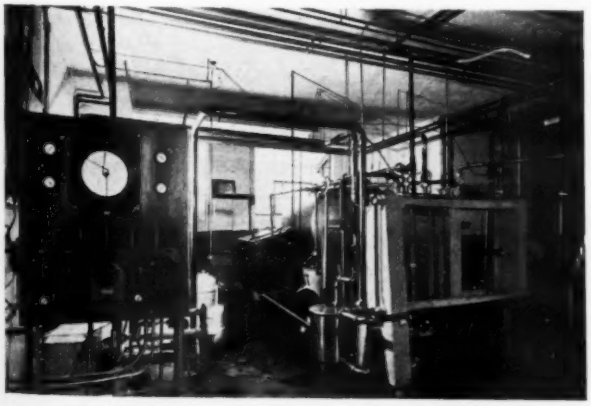
Jack Marcus, owner of the business, and his sister Miss Rose Marcus smile as routemen dropping in after work give the attractive dairy bar the best possible endorsement.

The dairy bar is an extremely pleasant spot. Enclosed on two sides with large plate glass windows it presents an inviting appearance to passing motorists. Mr. Marcus said that his plant had not yet reached the point where he was able to produce his own ice cream mix. Next year however he hopes to have developed to the point where he can supply the dairy bar with all of the ice cream that it can use. The plant supplys the bar with ice cream at present but the mix is purchased on the outside.

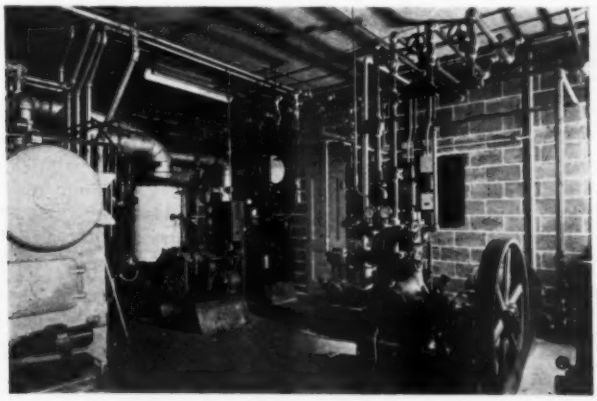
Dairy bars are becoming increasingly popular as a part of a dairy plant operation. One of the interesting reasons advanced by Mr. Marcus for incorporating the dairy bar into the building was the effect that it had on the public. In the first place ice cream is popular and dovetails well with the plant scheme. In the second place it creates a favorable impression on the public. People associate good quality products with a dairy bar and new milk customers often result from people dropping in for ice cream. Many dairymen feel that dairy bars offer a good outlet for surplus milk during the flush season. The demand for ice cream and ice cream mix begins its seasonal increase just about the time that the spring increase in milk supplies takes place.

Any discussion of Marcus dairy would be incomplete without presenting Miss Rose Marcus, Jack Marcus' sister. Miss Marcus is a remarkable woman. What she does not know about the dairy business can easily be put on the upper half of a bottle cap and thrown away. Since her father started the business twenty-four years ago she has been a major influence in the growth of business. She has worked in the plant, in the laboratory, and in the office. She was the first woman in Connecticut to be granted a pasteurizing permit and has participated in the dairy business from farm to doorstep.

As one travels around the country visiting dairy plants perhaps the most stirring aspect of the industry is the caliber of the individuals one meets. The dairy business is not an easy one. Possibly the survival-of-the-fittest process of selection has something to do with it. In any case there is always the feeling after a session at a milk plant, that here is something that is fundamental. Here is the best in small business enterprise. Marcus Dairy is no exception to the rule.



The boiler room is a study in compact efficient arrangement. Hot water is generated by the boiler on the extreme left. Two steam generators are in the center while three compressors are at the right.



All of the actual processing equipment is located in this concentrated arrangement. Piping has been held to a minimum by this set-up with consequent reductions in both initial cost and maintenance.

HOW THE BOSTON FORMULA WORKS

New England's Famous Pricing System Is Meeting With Favor Among Producers, Handlers and Consumers—Public Interest Has Been Intense

By **WILLIAM C. WELDON**

H. P. Hood and Sons, Inc., Boston

EFFORTS TO STABILIZE our agricultural economy in recent years have involved a substantial amount of commodity price-fixing by governmental agencies. Success in the eyes of the public has been relatively elusive in this job. This has sharpened the interests of economists in the subject of administered prices and has made each new line of effort a topic of lively discussion.

Class I or fluid milk has been one of the main fields of price-fixing activity. It provides for several reasons one of the most interesting to discuss and study. Half or more of the States and the Federal Government have been fixing minimum Class I milk prices in selected markets for the last 15 years. Today probably 75 percent of the fluid milk sold in the metropolitan population areas of the nation is sold at minimum Class I prices established by a State or Federal order. Public interest has been intense because of the importance of milk in the diet and in the budget. Farmers and milk dealers have been especially interested because the minimum prices fixed have usually been the prevailing prices paid. Milk price-making forces are fairly complex because while sanitary rules, perishability, and bulkiness tend to localize each major city as a market, the interchangeability of milk is great enough to require a fairly stable relationship among markets and among the various dairy products. Pricing procedures and pricing mechanisms under these milk marketing orders have varied considerably from time to time and from market to market, even among the 30 or so Federal market orders issued pursuant to the Agricultural Marketing Agreement Act of 1937.

These facts explain the interest shown in the new pricing plan adopted on April 1, 1948, for the Boston market.[1] This plan was also adopted for the adjacent Federal order markets of Fall River and Lowell-Lawrence. The main features of this Boston formula were developed during the summer of 1947 by a committee appointed by the Administrator of the Boston Order. The committee included 3 professors in Agricultural Economics from New England colleges, 2 economists from local farmers' cooperative associations, 2 economists from local milk distributors, and one economist from the Administrator's office. The Committee Report[2] formed the basis for amendments made to the Federal orders to incorporate the new pricing program.

Recent Conditions Favorable

Recent pricing and marketing conditions in Boston provided very favorable conditions for the consideration and acceptance of a new pricing program. War-time prices affected the seasonality of market receipts and served to move supply and demand in opposite directions more frequently than otherwise. A price formula relating Class I prices to market quotations for butter and skim milk powder, adopted soon after the war, proved to be very unstable. It had to be altered by suspensions with little advance notice in order to prevent serious anomalies, and did little to help correct basic supply conditions. The longer run history of Class I milk prices in Boston provided several periods when receipts and sales trends made it rather obvious that mistakes in prices had been made and thus provided a good basis for comparison with the prices which would have prevailed under the new formula.

The first job of the Committee was to develop a set of objectives to serve as broad standards for its work. These are indicated generally in the Agricultural Marketing Agreement Act of 1937 under which the orders are issued. These objectives were:

1. An adequate supply of milk at all seasons, defined to include a reserve of 20 per cent above actual sales in the months of shortest supply.

2. A more reasonable pattern of seasonality in market receipts than recent years.

3. Orderly and timely price changes in line with changing supply and demand conditions.

4. Prices and income for dairymen in line with general economic conditions.

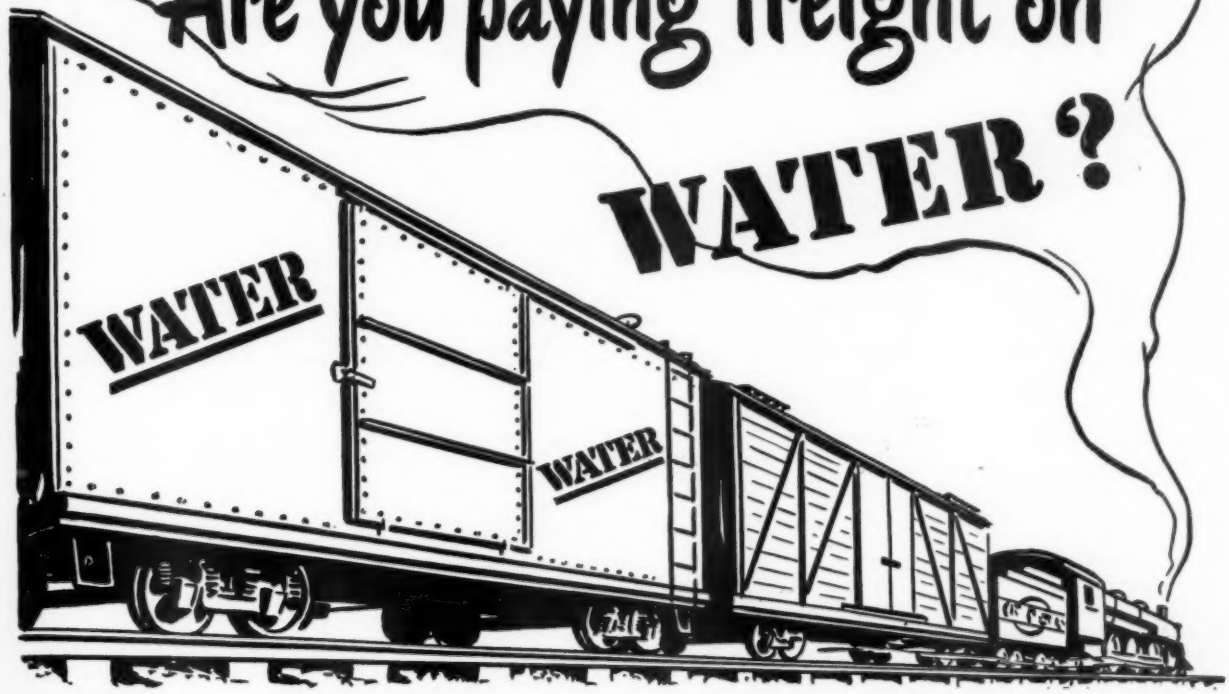
In order to accomplish these objectives it seemed clear that the Class I price should be made to change automatically as soon as specified conditions changed, rather than be established at some fixed level which level could be changed only after a public hearing and an approval vote from producers. Although public hearings appear to have some special appeal as legal instruments, and fixed prices seem more simple, more direct, and represent a firmer guarantee to farmers, these advantages are questionable today. Public hearings have become slow and cumbersome, often promote intemperate, emotional, and destructive discussions, and in the case of milk prices, mean that each price change, whether up or down, must involve a new producer vote of approval. Also, when economic conditions are changing rapidly, each fixed price must be based on conditions already well past or on an uncertain forecast of the future. In other words, the objective of orderly and timely price changes is very difficult to achieve.

Value of Formula Prices

It should be possible to make automatic or formula prices for Class I milk as logical and as understandable to dairy farmers as fixed or pegged prices. Sound formula prices provide an infinitely greater guarantee of security to farmers and of fair and reasonable prices to the public than prices fixed at any specific level for an advance period. It is most important to recognize also that if an obvious defect develops in the formula or if it needs to be amended temporarily to meet a special local situation, then a formula can be amended after a public hearing just as quickly and just as easily as a price level can be changed in a fixed-price type of order. The formula, therefore, is in no respect more fixed or rigid than a pegged price, but does guarantee timely price changes in the interim between public hearings.

Briefly, the new Boston formula provides that the Class I milk price shall vary in accordance with changes in a composite formula index calculated on a 1925-29 base. This index is the simple average of (a) the latest monthly index of all wholesale commodity prices in United States as published by the Bureau of Labor Statistics, (b) the average of the last three monthly indices of Department Store Sales in New England as

Are you paying freight on WATER?



Eliminate this needless chocolate flavoring cost

"Water, considered chemically, is an oxide of hydrogen having the composition H_2O . . ."* There is no chocolate flavoring in it.

So why buy water, mixed with sugar and flavoring, and pay freight bills for transporting it long distances in heavy metal containers?

Why pay $1.00 for 62c worth of flavoring? Invest your flavoring dollar in Johnston Dairy Powder . . . not water, not high freight on water . . . *just the finest chocolate flavoring.*

Backed by 27 proven merchandising plans that promote *your* name and *your* chocolate milk, Johnston Dairy Powder is your best buy—flavor-wise, cost-wise, sales-wise. Write today for full information.

Chocolate-flavored syrup performs a service where small quantities are required or where a cold process is used in producing chocolate milk. Johnston Dairy Syrup distributors can give you full information.

**Encyclopedia Brittanica*

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Chocolate and Cocoa Division
MILWAUKEE NEW YORK

published by the Federal Reserve Bank, and (c) a joint index of the latest available costs for farm labor and for dairy feeds in New England as calculated by the Market Administrator each month from regularly published figures. The basic Class I price varies in intervals of 22 cents per 100 pounds in accordance with bracketed changes in this composite formula index.

Super-imposed on this basic price structure is a seasonal pattern which provides a price 44 cents per 100 pounds above the basic level in the fourth calendar quarter, and 44 cents below the basic level in the second calendar quarter each year. An additional seasonal safeguard prevents any price increase from March through June and any price drop through December each year.

Also super-imposed on the basic price is a provision whereby the Class I price is automatically lower by 44 cents as soon as and so long as the percentage of surplus in the market for the most recent 12 months is above the critical level defined as 41 per cent. Similarly the critical level on the low side is 33 per cent, which calls for a price 44 cents higher than otherwise provided so long as the shortage continues. Only such part of this supply-demand adjustment can operate as will not cause a price change from the same month a year earlier of more than 88 cents per 100 pounds.

The three basic factors in the formula are designed to reflect local supply, local demand, and general economic conditions. The three are given equal weight for reasons of simplicity and logic, and also because the results met the empirical test. So far this has had very popular appeal. With a relatively inelastic demand and with delayed if not inelastic supply reponses, this equal weighting might not have been necessary to meet some of the objectives, but it is fair and reasonable and is safeguarded by the supply-demand adjustment. Also, the weightings might not have been equal if the results of detailed statistical and correlation analysis of factors affecting the Class I price had been adopted. The objectives called, however, for a more general empirical analysis with logic and equity and sound public policy as the standards.

The wholesale price level represents a basic tie-in with the whole economy of the nation, measuring the level of general economic conditions as reflected on a composite basis in the primary wholesale markets. In any analysis of factors affecting Class I prices, the first step would probably be to deflate the price series by this wholesale price level, just as for resale price analysis the series might first be deflated by the consumer price index.

Grain and labor costs reflect the main cash cost items in milk production in New England. Changes in such costs may not forecast precisely changes in the supply on a short-run basis, but a stable relationship between these costs and milk prices is necessary to a stable milk supply. Changes in these costs, also, must be important factors in the timing and degree of milk price changes if such milk prices are to bring economic stability to the farmer. Total production costs are more difficult to measure. Also, they are partly reflected by the wholesale price index.

Demand Factor Widely Discussed

The demand factor used in this new pricing formula has probably created more comment than any other factor. The index of New England Department Store Sales was selected as a measure of changes in New England consumer purchasing power. It comes closer to measuring changes in the disposable income than any other factor available—payrolls, industrial activity, or others. It is available monthly, whereas actual income figures regionally are available only on an annual basis and are not available on an annual basis until Augst of the following year.

There is available, of course, a current monthly figure on the amount spent for milk. To use such a figure as the demand factor, however, would be to flaunt public interest and potentially at least exploit the inelastic demand for milk. It would be comparable to using the farm value of all the milk produced as an index of the supply part of a pricing arrangement. It would be circular reasoning of the worst type. If the supply were inelastic this value would change only after a price change rather than before. The same would be true of the money spent for milk if demand were inelastic.

This index of consumer purchasing power does not necessarily measure or forecast in any precise or accurate manner changes in the sales of milk at various prices. This need not be its restricted purpose, however, in the pricing formula. It is the key factor on the demand side, fundamentally affecting the price consumers will pay for milk and the amount they will purchase, and thus the basic factor in the reasonableness of milk prices from a public interest standpoint. The formula recognizes that changes in income-price relationships will affect sales, just as changes in cost-price ratios will affect production, and that sound orderly prices require a balanced relationship to both incomes and costs. This balancing job may change in character if there is a basic change in milk using habits or in the techniques of milk production. Any formula may need basic changes accordingly.

The special seasonal pricing provisions are designed to encourage a return to the

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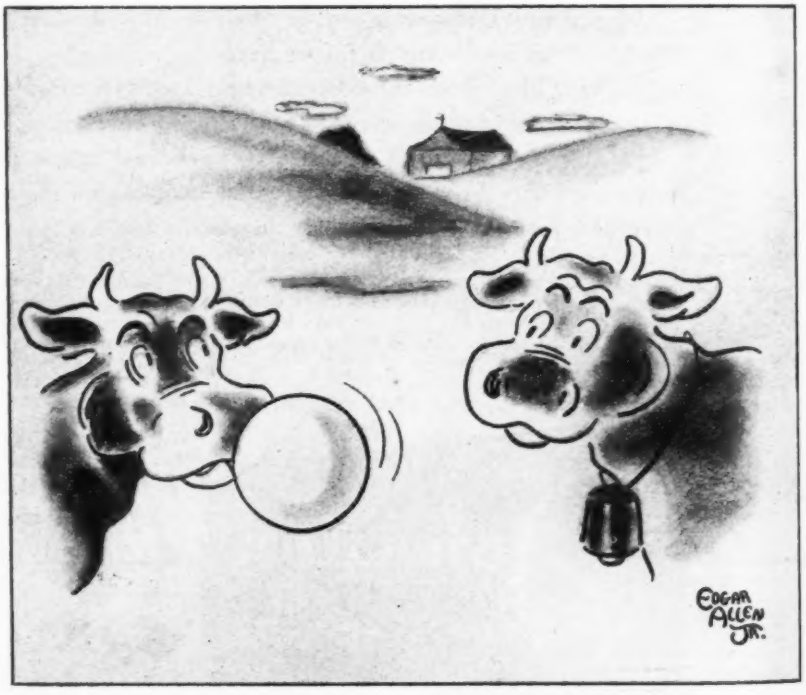
Dairy Daze

By Edgar Allen, Jr.



"WHY, MY DEAR, NOBODY CHEWS A CUD ANYMORE!"

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VEL* REDUCES BACTERIA COUNTS

Cleans Milking Equipment Cleaner—Eliminates Milkstone!

MOST EXTENSIVE EXPERIMENT OF ITS TYPE IN THE HISTORY OF THE DAIRY INDUSTRY!

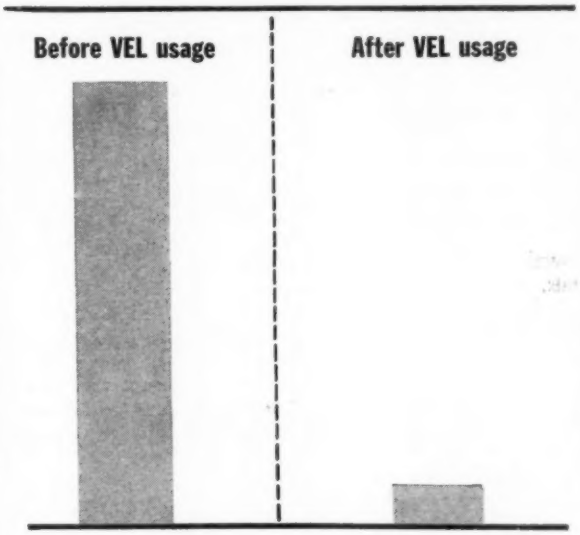
A study just released by a leading independent laboratory proves that high bacteria counts caused by inadequate cleaning methods can easily be reduced. By cleaning milking equipment more thoroughly and eliminating milkstone, Vel, a neutral monoglyceride detergent, drastically reduces total and thermoduric counts.

For this experiment, the laboratory selected a group of shippers whose consistently high counts were the result of poor milk-handling techniques. These techniques were corrected and standardized so that the only variable in the milk-handling routine was the way in which the equipment was cleaned. Half the shippers cleaned with Vel. The other half cleaned their milking equipment by any method they preferred except with Vel and the VELocity method.

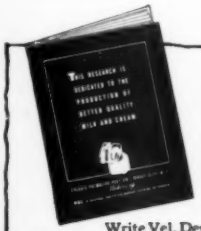
VEL AND ONLY VEL OFFERS THIS PROOF!

As shown on the chart (right), the results of this experiment prove the efficiency of Vel in reducing bacteria counts. On the farms where ordinary cleaning methods were used, the bacteria counts remained high. Where Vel was used, the bacteria counts, in every case, were reduced drastically from their former high level. Vel is not a bactericide, but is a wetting agent of the type recommended by many agricultural schools.

AVERAGE WEEKLY TOTAL AND THERMODURIC COUNTS ON TESTED FARMS



Total and thermoduric counts were dangerously high when milking machines were cleaned by ordinary methods. Counts dropped dramatically when shippers cleaned with Vel.



FREE!
Full account of VEL experiment

Write Vel, Dept. M-665, Jersey City 2, N. J. Ask for a copy of the 38-page report, "Wetting-Agent Cleaning of Milking Machines and its Effect on Total and Thermoduric Levels of Night and Morning Milk," by the New Jersey Dairy Laboratories.

AND VEL CLEANS SO MUCH FASTER... EASIER!

Vel is so much faster and easier to use that now, for the first time, it is *easy* for busy farmers to keep their milking equipment really clean, and improve the quality of their milk.

Vel flushes out the milk fat and milk slime; so brushing is cut to the minimum. In less time, with less work ... Vel gets milking machines, separators, pails, cans, strainers, and churns cleaner than they've probably been since they were new.

* VEL is the trade-mark of the Colgate-Palmolive-Peet Co., Jersey City 2, N. J.

THEY EMPHASIZE QUALITY

Atlanta Dairy Firm Demands the Best in a Streamlined Production Program That Extends From the Pasture to the Consumer's Doorstep

By **RUBY C. CLEMENTS**

IN THE PHYSICAL equipment of their plant Brownlee & Lively have spared no efforts or expense to bring the best in dairy products to the city of Atlanta. When it comes to milk and other dairy products only the best is good enough to suit the president and principal owner, Mr. J. H. Lively. This fact, a yardstick to which every operation must measure, prevails from the selection and the feeding of the herd to the delivery of milk to the customer's door.

On September 17, 1941, this dairy was certified by the Fulton County Medical Society and the American Medical Commission. At the present time there are only three certified dairies in the city of Atlanta and its suburbs, so rigid are the standards for certification.

Begin With Fundamentals

Brownlee & Lively begin with fundamentals. The selection, feeding, and care of their herd is a matter that commands careful attention. The herd is made up of Guernseys, Jerseys and Holsteins, and each cow is selected with great care. Each cow is government tested at regular intervals and is given individual care and attention. The dairy ration of the herd is carefully planned. A well balanced diet, well fortified with minerals and all food elements is supplied.

The cows are milked on a concrete floor which is carefully scrubbed before each milking, and which is constructed for complete drainage. When each cow enters the milking room, she is given a shower bath with water pumped from a deep well. Udders are inspected, and given a chlorine solution bath. The first milk is caught on a black strainer cloth to insure that there is no congestion or other matter left in the teats to contaminate the milk. If all conditions check correctly, then the cow is milked.

Milk Quickly Cooled

Immediately after each cow is milked, the milk is conveyed into the cooling room where its temperature is quickly reduced to 40° F. It is then carried into the storage room by pipe where a constant temperature of 40° F. is maintained. The dairy has its own ice plant and refrigeration system which insures the maintenance of proper temperature without danger of interruption or stoppage.

Recent enlargements and additions involving the expenditure of thousands of dollars have more than tripled the capacity of the plant and for each operation the best and latest equipment known to dairy science has been installed. A leading milk plant authority has described Brownlee & Lively as one of the nation's best equipped producer-distributor.

Local college and high school students, in addition to hundreds of other guests, often visit the dairy, inspecting the herd, plant and facilities. The plant is located on Briarcliff Road, within a convenient distance from the city of Atlanta.

Cleanliness and sanitation are emphasized in every operation. All equipment used in handling the milk undergoes daily sterilization, inside and out, and every member of the staff must pass a medical examination once each week. A shower bath before going on duty, taken under the showers in the plant, is a regular daily requirement for every employee engaged in production.

This dairy has a corps of courteous, well trained deliverymen, equipped with a fleet of refrigeration trucks, delivering products to the doors of customers. Mr. Lively supplies 90 per cent of his milk to homes, while 10 per cent goes to business establishments. His services extends throughout Atlanta proper and suburbs of Atlanta.

Guernseys Are Popular

About 100 cows belong to this dairy. Recently 40 registered Guernseys were added to the dairy. The herd grazes on spacious pastures well supplied with fresh water. In the winter the cows are protected by large barns so constructed that ventilation comes from the top of the barns and no drafts strike the stock. In the barns each cow is provided with an automatic drinking fountain from which she may drink fresh water as often as she wishes.

Planning, service, and quality milk products, according to Mr. Lively, have been steps in acquiring a solid name in the dairy industry of Atlanta. Mr. Lively went into the dairy business about 23 years ago. He is active in many civic activities in Atlanta. For a number of years he served on the Milk Control Board of the State of Georgia. The dairy to Mr. Lively is both hobby and livelihood.

Some of the cows on this dairy farm have cost as high as $1,200.00. Mr. Lively prefers the Guernsey. He describes them as "the gentlest and the best mannered of dairy cows." With the addition of the large herd of registered Guernseys which he has recently purchased, his dairy farm is one of the most complete in the state. Recently a new package known as "Premium Package" has been produced by the dairy.

DISCOUNTS CAN BE HOT

The recent Supreme Court decision in the Morton Salt case concerning discounts may have direct effect on the dairy industry. Unofficial reports indicate that the Federal Trade Commission may plan to make further drives on companies using "unjustified" discount and rebates. Such practices may lead to serious trouble unless it can be forcibly shown that such "end prices" are justified by actual savings to the seller who bears full responsibility in such cases.

●

DIVERSEY APPOINTS SAYLOR

Lynn A. Saylor has been appointed advertising manager of the Diversey Corporation, it was announced by W. E. Noyes, general sales manager.

Mr. Saylor has a wide advertising background, having held similar positions with such major organizations as Mystik Adhesive Products, Ingersoll Steel Division of Borg-Warner, Hotpoint, Inc., Division of General Electric, and Certain-Teed Products. He will handle all of the advertising for Diversey, nationally known for their specialized line of chemical sanitation products and insecticides sold to the food industries and industrial field. He will also handle the advertising for the company's consumer line of Enoz moth control products.

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There's a work saving, time conserving A-1 Flexible Link Conveyor specifically designed to meet every need in the dairy, beverage and food industries. These "engineered for efficiency" conveyors drive around corners and obstacles WITHOUT gears or sprockets at curves. Moving parts are reduced to a minimum, and no pins, cotter pins, or set screws are required. Chain links are in one piece and can be removed by hand without the use of tools. Chains, discs, adjustable rails and hood are all readily removable for the proper cleaning that today's sanitation standards demand. For a smooth, speedy production flow and over-all economy in time, money and manpower, install an A-1 Flexble Link Conveyor.

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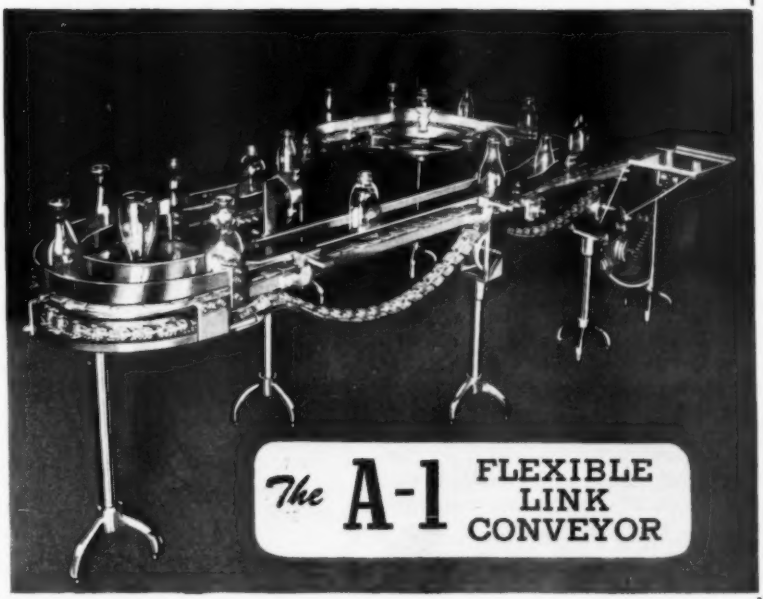

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North of Forty-Nine

A PAGE DEVOTED TO THE DAIRY INDUSTRY IN CANADA

MONTREAL MILK INSPECTION

11 Veterinarians in Charge of Keeping City's Milk Supply Free of Contamination — Work Divided into Groups for Efficiency

Montreal, Que.—In a report on the organization and activities of the City of Montreal's Department of Health it is revealed that milk inspection in the country is carried out by eleven veterinary inspectors who inspect the farms and dairies of 5,000 producers who supply Montreal with milk or cream from 92,000 dairy cows. These inspectors also look after production and transportation of the milk, the health conditions of producers and their herds, control the quality of the milk, investigate cases of contagious diseases, etc.

In the city, inspection is carried out by two groups.

Groups A, including eight inspectors, inspect milk from its arrival in the city to delivery, including by-products; that is—

(a) Milk. Control of quality and supervision of vehicles, control of sales permits and licenses; health cards; examination of milk for cleanliness, appearance, taste; samples taken for chemical analysis; fat content; watching sales in groceries, restaurant, hotels, hospitals, foundling homes, schools.

(b) Milk By-Products. Ice cream, cheese, butter, skimmed milk, "yoghourt," chocolate milk. Same supervision exercised for cream sold on markets.

Group B, including eight inspectors, are responsible for the inspection of dairies and pasteurization plants.

Pasteurization and special milk control consists in:

Visits at least twice a week to all pasteurization plants. There are 29 of which 27 are for milk and 12 for by-products. Inspection covers quality of milk and cream received; cleanliness and sanitary condition of plant and equipment; pasteurization process; bottling; sterliging; washing of bottling and cans, taking samples, etc., and on possible improvement.

(b) Inspection of special (raw) milk establishments. These number 13. Bottling is controlled by:

1. Supervision of cleanliness of premises and equipment; sterilization apparatus and utensils; bacteriological control and sample taking.

2. Inspectors are present during milking, supervise cleanliness and sterilizing of equipment, bacteriological tests.

(c) Sample taking for bacteriological and chemical control:

1. Milk and cream in pasteurizing plants and special milk plants; at delivery to hospitals, schools and dealers.

2. Of water from the waterworks systems and wells.

●

CANADIAN STYLE OF EVENTS TO COME

1948

Nov. 1, 1948, to Apr. 23, 1949—Diploma Course in Dairy, University of Alberta, Man.

Nov. 16-24—Royal Winter Fair, Exhibition Park, Toronto, Ont.

Nov. 24-25—Eastern Ontario Cheesemakers' Assn. Convention and Cheese Show, Brockville, Ont.

Nov. 23-24—Ontario Milk Distributors' Association Annual Convention, General Brock Hotel, Niagara Falls, Ont.

Nov. 24-25—Ontario Association of Ice Cream Manufacturers, Annual Convention, General Brock Hotel, Niagara Falls, Ont.

Nov. 29, 30, Dec. 1—British Empire Dairy Show and Annual Convention, Central Ontario Cheesemakers' Assn., Belleville, Ont.

Dec. 2-3—Ontario Creamery Association, Annual Meeting, Royal York Hotel, Toronto, Ont.

1949

Jan. 3 to Mar. 30—Dairy School Course, Ontario Agricultural College, Guelph, Ont.

Jan. 13-14—Dairymen's Association of Western Ontario Annual Convention and Exhibition, Hotel London, London, Ont.

Jan. 26-27—Manitoba Dairy Association, Annual Convention, Royal Alexandra Hotel, Winnipeg, Man.

Apr. 4-8 and Apr. 11-15—Ice Cream Courses, Ontario Agricultural College, Guelph, Ont.

●

MILK SHIPPED TO EUROPE

Montreal, Que.—More than 4,000 barrels of powdered milk has been shipped to Europe from Montreal on two freighters recently.

The milk, destined for European youngsters, was offered as a gift of Canadian school children who contributed to the United Nations' Children's Fund.

Half was sent aboard the freighter Sein, which went to Antwerp. Sweden's Vasaholm carried the remainder to Poland, Finland and Czechoslovakia.

CANADIAN PRODUCTION DOWN

Blame Shortages of Milk on Older Farm Workers, Fewer Cows and Increasing Population in Dominion

TORONTO, Ont.—Canadian milk production this year has been substantially less than last year and has been declining since the peak year of 1945, J. Frank Way, president, Ingersoll, this week said to the annual meeting of the Ontario Concentrated Milk Producers' Association.

He said the decrease is illustrated by the fact that the milk cow population of Canada at the beginning of the year was seven per cent lower than the 1937-41 average.

Downward trends in production are largely the result of the higher average age of the men operating farms which cuts down working speed, and the high cost of farm labor, he declared.

Suggestion that the "controversial" butter shortage next winter 'may not be as bad as it sounds," was expressed by Charles Milton, secretary.

While admitting that there is an increased population in Canada and that the stock of butter in storage is down several millions pounds, he suggested that the feared shortage has caused some consumers to buy butter and store it.

"If we want butter, the price must increase to where the produced will receive at least the cost of production," declared Mr. Milton. Butter at 72 cents a pound at retail and churning cream at 74 cents a pound butter fat, compared unfavorably with the approximate $2 a pound butter fat paid by the consumer for fluid milk, he contended.

Mr. Milton suggested that many farmers now prefer cash crops against the drudgery of milking cows twice a day.

With declining fluid milk consumption and declining cheese consumption, Mr. Milton said that "all indications point to the manufacturing party of the dairy industries as having the greatest future."

He urged that one glass of milk should be given free of charge each lunch hour to every school child in Canada.

BOOM PASTEURIZED SALES

Winnipeg, Man.—The popularity of pasteurized milk in Winnipeg, over raw, or unpasteurized milk, is revealed in a statement of the Manitoba Milk Control Board, that raw milk sales have declined down to only 2 per cent of the total sales.

The Board also disclosed that compulsory pasteurization by-laws are being mooted in a growing number of Manitoba municipalities.

The City of Winnipeg has no compulsory pasteurization by-law, but of the 3,494,880 quarts of milk consumed in Greater Winnipeg in June, only 71,261 quarts were unpasteurized. Last October, 121,000 quarts of raw milk were consumed in the area, which would suggest that there is a steady decline of raw milk sales. Compulsory pasteurization in Manitoba affects Brandon, Portage la Prairie, Neepawa and Swan River.

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PASTEURIZED MILK AT PINCHER

Pincher Creek, Alberta—The Mountain View Dairy, Pincher Creek, Alberta, started operation of its new pasteurization plant recently. The dairy building, as well as the equipment, is new and fully up-to-date. The plant manager is E. Petersen. A by-law recently passed at Pincher Creek makes it compulsory that all milk and cream sold or delivered in the town be pasteurized.

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BOOST MILK PRICE

Quebec City, Que.—A milk producers' demand for a boost in the price of milk—already selling at nearly twice what it cost before the war—was placed before the Quebec Dairy Commission here recently.

Milk distributors who complained that the hgih price of milk had already reduced consumption, argued the price should not be increased.

The distributors told the commission they feared another price rise would only cut down consumption further.

Producers pleaded that increased production costs made it imperative for the commission to allow a price boost.

The hearing was adjourned indefinitely pending the three man commission's study of reports and documents fro mboth producers and distributors.

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YOUNGSTERS FACE CRISIS

Montreal, Que.—Canadian young fry are learning the meaning of inflation. first it was the seven and eight cent candy bar and now it is the six-cent ice-craem cone.

When the modern inflation 'bogey" first entered their young lives, howls of protest were heard throughout the land and buyer strikes were staged in true grown-up fashion but to no avail.

With allowances newly-adjusted to meet the rising cost of sweets the youngsters are not taking this second blow without resentment. However, the six-cent cone is here and they must budget their pennies again to meet this new trial.

The increase can't be helped, according to store-keepers. Ice-cream which once cost them $1.50 a gallon now costs $1.90 and producers say this increase stems from higher costs of ingredients and labor.

Parents expects their offspring will start demanding increased allowances.

CHEAP AT HALF THE PRICE

Vancouver, B. C.—A very interesting situation arose at Port Alberni, B. C., when it was charged by a local alderman that not only match folders but also dollar bills were found in full bottles of milk delivered locally. The charge was made at a council meeting.

●

MILK PRICE IN MONTREAL

Montreal, Que.—The Dairy Industry Commission of the Province of Quebec has amended Order No. 1-48E and enacted that the price of milk, in half-pint bottles, to be delivered to pupils in the region of Montreal is set at five cents, effective immediately.

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NEW DAIRY SECRETARY

Fredericton, N. B.—Appointment of J. R. Sutherland as secretary of the New Brunswick Dairy Commission was recently announced by Hon. Auston C. Taylor, Provincial Minister of Agriculture.

Mr. Sutherland, who lives at Sussex, N. B., is director of Provincial Dairy Services; he succeeds H. N. Flewelling, secretary of the commission who is retiring because of ill health. The new secretary comes to his post well qualified as he joined the Provincial Department of Agriculture in 1922 as assistant dairy superintendent, becoming superintendent in 1933. He is a graduate of the Ontario Agricultural College, Guelph, Ont. Mr. Sutherland will continue in his present position as Director of Dairy Services.

Mr. Flewelling has had a long and fruitful association with the dairy business in the Maritimes. In 1912, he started with the Dominion Department of Agriculture in dairy herd improvement work and in 1933 joined the New Brunswick Department of Agriculture as head of their Dairy Improvement Service. He was appointed secretary of the Dairy Products Commission in 1935. The staff of the Department of Agriculture honored Mr. Flewelling recently on his retirement and Mr. Taylor presented him with a chair.

For the purpose of coordinating all livestock policies, Mr. Taylor also announced that the Herd Improvement Service was being attached to the Livestock Department and would come under the direction of J. C. Bennett, Director of Livestock Services.

●

FORM DAIRYMEN'S ASSOCIATION

Vancouver, B. C.—Dairy farmers in the Kootenay valley of British Columbia—from Castlegar, Robson, Rossland, Salmo, Columbia Gardens and Fruitvale—met recently at the Fruitvale, B. C., Community Hall and decided to form a Kootenay Dairymen's Association.

The majority of the producers ship their milk to Palm Dairies or the United Dairies at Trail. A resolution was ordered at the meeting to be sent to both these dairies asking for an increase of 85c per 100 lbs. of milk over the present scale and 3c per point butterfat raise. The present rate is 5c per point. The producers maintain that the rising costs of living and feed, new British Columbia sales tax, and freight rate increases made a greater return for their milk and cream imperative.

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UXBRIDGE DAIRY CHANGES HANDS

Uxbridge, Ont.—The Merrick Dairy, here, has been sold by Ernie Merrick to George Climpson of Newmarket, Ont. Mr. Merrick started the dairy business in Uxbridge 17 years ago. In 1945 he built a new pasteurizing plant on Brock St., with a milk bar at front.

Mr. Merrick has moved to Toronto and has purchased a milk route from Georgetown to Toronto. Mr. Climpson has been associated with the Newmarket Dairy and Creamery for some 25 years and is now stepping out in business on his own.

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NEW DAIRY BAR AT AYLMER

Aylmer, Ont.—Glovers Dairy Bar, on John St. South, here, has gone into operation. It is located on a site formerly occupied by realty and insurance offices, and the Milk Bar is modern in every respect.

MILK VENDING - A NEW HORIZON

By **EVERETT J. NEWCOMER,** *Vice-President*
City Milk Company, Incorporated

MANY OF YOU have at some time considered going into the milk vending business and have undoubtedly asked yourselves quite a few questions to which you did not have the answers. One of these might have been: "Why is it, that milk, which has always been available, has not been satisfactorily vended?"

In order to obtain part of the answer to this question, we would have to go back a considerable number of years to the time when milk became available in cans and was usually dipped into pitchers or buckets brought by the housewife to the dairy or to the store.

After health regulations began to force milk into containers or bottles it was only natural that the dairies themselves would design different types and shapes of containers, and through the years this has developed into a race, it seems, to see who can design the most impossible type of container to vend in a single machine, and today, we find a large number of bottles and containers without any semblance of standardization at all, and it appears that there will not be any standardization in the near future.

Designers of vending equipment, with this picture in view, have generally confined their efforts to bottle vending machines, made to handle the much larger market of bottle beverages. They apparently decided that the milk industry would have to do a little standardizing on a container or containers that could be easily vended before it would be profitable to develop a machine that would automatically dispense milk.

New Vendors for Milk

Equipment has been designed now, however, that will automatically dispense all known types of containers used for milk today, and this news is heartening to all of us who have been groping in the dark, so to speak, trying to find satisfactory vending equipment.

I have stressed automatic dispensing for a very definite reason. Our experience over the past ten or eleven years with many different types of equipment has proved to us, beyond any shadow of a doubt, that more people will buy more products from a piece of automatic equipment than they will from equipment that they operate manually. Automatic equipment allows the operator to force his customer to operate on his own time cycle and, therefore, does not let the customer waste time at a machine. Wasted time costs the operator sales and, in some cases, might keep his sales at a minimum that would not allow him to operate his equipment profitably. If he were able to force the customer to operate on a faster time cycle, he might be able to obtain enough extra sales to keep a location that he might otherwise have to give up.

Twenty-Seconds Per Sale

Our research into this phase of milk vending has shown that with manual equipment, on an average, it takes approximately twenty seconds per product sold, counting the time between the actual insertion of the coin by the customer and the delivery to him of the product.

A fifteen minute period at the lunch hour is about all the time that is available to us, in order to make thirty-five to fifty per cent of our daily sales. If we will analyze this just a little, we will find that using manually operated equipment, thirty to fifty containers per machine is about the maximum we can expect to sell during the average lunch hour, and, although we call it a lunch hour, its actual duration is usually from thirty to forty-five minutes.

Now, when we compared this to the operation of automatic equipment, we find an entirely different story. It has been practically demonstrated, that it is possible, using automatic equipment, operating on a delivery time cycle of approximately two or three seconds, to deliver to as many as 168 persons within a period of fifteen minutes. A piece of mechanical equipment previously operated in exactly the same plant location, sold approximately thirty-five units during the same fifteen minute period of the day.

It should be noted, however, that in the case of the automatic machine two products were vended from the same machine with two different persons operating simultaneously, and this, of course, allowed many more persons to be served within this time. It should be further stated that in the case of manually operated equipment, milk only was available; whereas, in the automatic equipment, milk and chocolate milk were available to the customer.

Variations in Sales

The sales, at the lunch hour usually run about two milk to one chocolate. Reverse results are noted at the rest periods in the morning, and in the afternoon. In other words, during the rest period the customers normally buy more chocolate than they do milk, in the ratio of about two to one. To further elaborate on these particular tests, the daily sales records of the two different types of equipment showed approximately 750 units of milk were sold in each twenty-four hour period, using thirteen pieces of manually operated equipment; whereas, when automatic equipment was installed twelve pieces of equipment sold and averaged between 1800 and 2100 units per day.

We believe that this and similar tests have proved, at least to our satisfaction, that to get the maximum number of sales obtainable in a location, it is absolutely necessary that completely automatic equipment be used and while it is true that automatic equipment costs more originally, the sales justify the higher initial cost.

Good or satisfactory equipment alone will not assure your success. It is also necessary to maintain an adequate maintenance staff trained not only in keeping the mechanical equipment in perfect operating condition, but further trained to handle customers in a manner to inspire confidence in your product and in your service. This will require that you select men who are not hot headed, but rather those who can keep cool in the face of criticism or even abuse.

Your milk division must be headed by someone who not only knows something of the handling of milk and milk products, but even more important, he should understand the vending business. If you bungle a few locations, and give them poor service, it will not only react against you, but will greatly damage the entire vending picture in so far as that particular plant is concerned. A poor milk machine operator can ruin a

It's easy without competition

Yes, but there's plenty of competition! Think of all the different foods that are bidding today for the American food dollar—many of them with powerful promotional backing!

Teamwork is needed to meet this keen competition. And that's where the National Dairy Council comes in. By promoting the outstanding food value of milk, butter, cheese and ice cream through its nationwide educational program, the Dairy Council clears the field for you to make *more gains in sales!*

For 33 years, day in, day out, the Dairy Council has been widening your market, building more sales for you . . . by spreading accurate, up-to-the-minute information about all dairy products . . . by reaching millions of physicians, dentists, teachers, nurses and others who mold the food habits of 140 million Americans.

And today, this type of sales promotion is needed more than ever, both to maintain the gains the dairy industry has already made, and to expand its markets for the future.

Insure more sales for yourself . . . now and in the future . . . by supporting this important promotional program. If you're not a member of National Dairy Council, join today!

What is NDC? The National Dairy Council and its affiliated units in more than 50 markets serve every branch of the dairy industry—milk producers, milk dealers, butter, cheese and ice cream manufacturers, and dairy supply and equipment manufacturers.

It is the dairy industry's own non-profit sales promotion organization, promoting greater consumption of milk, butter, cheese and ice cream through Research, Education, Publicity and Advertising.

How Does It Operate? Through the active cooperation of leaders in governmental, professional, educational and consumer fields, the Dairy Council is constantly reaching physicians . . . dentists . . . nurses . . . teachers . . . nutritionists . . . home economists . . . club women . . . and others who influence the eating habits of 140,000,000 Americans.

Here's How to Become a Member! Simply write, wire or phone the National Dairy Council, 111 N. Canal St., Chicago 6, Ill., and an application blank will be sent to you immediately.

A non-profit, research and educational organization promoting national health through a better understanding of dairy foods and their use.

111 North Canal Street
Chicago 6, Illinois

National Dairy Council

Since 1915...the National Dairy Council, a non profit organization, has been devoted to nutritional research and to education in the use of dairy products.

In recognition of the National Dairy Council and its important work for the entire Dairy Industry, this space has been contributed by.....

American Milk Review

location for candy, gum, cigarettes, or anything else that might be vended, and we each owe a responsibility to our fellow vendors to maintain our locations so that others may profitably operate their equipment in the same location.

Little Competition With Other Beverages

Some of you, might feel that the milk vending and beverage vending particularly, might be competitive, but this is at complete variance with the facts. A person walking into an area in which there is a milk vending machine and a beverage machine, whether bottle or cup, seldom if ever, hesitates to decide between the products.

This could probably be best illustrated by the fact that beverage sales are greatest at rest periods; whereas, milk sales are greatest at the lunch hour. The only time when the two products might play a little part in competition would be in a location where chocolate milk is available as well as white milk of sweet milk. The fact that the American taste seems to run towards chocolate, gives chocolate milk a chance to compete in a small way with beverages at these rest periods, but not to a degree equal to that of two soft drinks competing against each other.

We, like many others in the milk vending field, have tried various size containers to find out what the general public requires or desires, and it has been found most practical to use a one-third quart or ten and two-thirds ounce container, wherever legal, as it lends itself to a higher unit price than the half pint, and also is in an advantageous price position as compared to the pint. Many customers have told us that a half pint was a little bit short, and a pint was more than they wished to drink at one time. The one-third quart has been a very acceptable size. In areas where the one-third quart is not a legal size the half pint would be the best bet. This would be true because in the average location the past purchases have, in the main, been half pints. It is not necessary then for you to sell a location on a new type or size container, and then again with your present price structure, you will be able to sell the consumer at a lower price.

Vendors for Apartment Houses

I would like to bring to your attention now something that is, we believe, going to be one of the widest fields of operation so far brought into the sights of the milk vending operator. That is the vending of quarts in paper or disposable containers in apartment houses, particularly those located a few blocks from stores. The extra cost of home delivery usually runs from one to two cents per quart and with all prices higher and the housewife being conscious of all savings possible, home deliveries of milk are in many cases falling off, while store purchases are picking up. This leaves a wide open field for a milk vendor to install machines in apartment houses, where, in effect, he will have an automatically operated store and he can sell his product directly to the housewife at the same price as she would purchase her milk at the store. Furthermore, she would be saved the bother of lugging it home. The housewife would appreciate this service even more on weekends as she would purchase her products as needed without having to load her ice box and take up room which she needs for other products.

Our investigations in this field have shown that it is probably a much larger field of operation and can be more profitably handled than the industrial location. Machines for this use will have to be equipped with coin devices to accept odd amounts ranging from ten or twelve cents in some areas, to as high as twenty-seven or twenty-eight cents in others. The designers of equipment have long recognized this possibility and as a result are developing, or have developed, practical equipment that will accept these odd amounts.

The deliveries to this type of a location could be made in the early morning hours with little or no traffic congestions, and consequently a greater number of products could be handled by each routeman with little loss of time in traveling. This factor in rural areas would not be noticeable, but in the larger cities where this operation would be more feasible. The traffic situation today is such that routemen spend more time traveling than in actually delivering his products.

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Chapin Heads Dairyman's League

Eastern Cooperative Chooses New York Man to Fill Vacancy Created by Death of Henry H. Rathbun

Leon A. Chapin, North Bangor, New York dairyman was elected on October 15 to the presidency of the Dairyman's League Cooperative Association. Mr. Chapin, a League member for the past thirty years succeeds the late Henry H. Rathbun, whose untimely death occurred at Des Moines, Iowa on September 29.

A member of the Association since 1920, and its predecessor, the Dairymen's League, Inc., from 1917, Leon Chapin's record reads like a listing of all the elective positions in the organization. From the posts of local secretary, local director and county president he advanced to director, member of the executive committee, secretary treasurer and now president.

Mr. Chapin became a county president in 1923. Two years later he was elected a director. In 1928 he was chosen to serve on the executive committee, became secretary in 1934 and has been treasurer since 1942.

Born in Westville Center, Franklin County, Mr. Chapin has been a life-long resident of that county, and for practically all of his life a dairy farmer. His father, the late Fred F. Chapin was a farmer, and at one time conducted a country store in North Bangor. Leon Chapin's lone ventures out of farming were a boyhood departure to work as a bell-hop at a Thousand Island hotel in the summer, and to try his hand in his father's store. Neither of these ventures were of long duration, nor the occupations much to his liking.

Other officers elected included Paul L. Talbot of Burlington Flats, First Vice-president, Louis M. Hardin of Sussex, N. J., Second Vice-president, George W. Slocum of Milton, Pa., Treasurer, Ernest C. Strobeck, Macedon, N. Y. to the Executive Committee, Seymour K. Rodenhurst, Theresa, N. Y. Secretary, and Herbert L. Seely, Knoxville, Pa., to the Executive Committee.

His successful farm operations have been based on a sound business education. After graduating from the North Bangor Union Academy he attended the Central City Business College in Syracuse.

Always interested in civic affairs, Mr. Chapin has been mayor of North Bangor, town clerk and president of the Board of Education. In 1907 he married Miss Hazel Royce of North Bangor. The Chapins have two daughters and two sons, the youngest, Russell, being associated with his father in their farming operation.

The roster of organizations which Mr. Chapin has helped to guide reads like a listing of the major farm groups of the state and nation. He is widely known in governmental circles in both Albany and Washington and among farm leaders across the continent.

Buy More U. S. Bonds

X-Disease Survey

Reports on Southern States Disclose Death Results in 59 Per Cent of Cases—Average Loss to Owner Over $4,000 Per Herd

COMPLETION of a preliminary survey of X-disease of cattle in Alabama, Georgia, Florida, Tennessee, and Virginia by a group of four scientists confirms previous reports that the malady causes heavy death losses and is otherwise of economic importance, the U. S. Department of Agriculture announces. In the course of the survey covering a total of 6,208 miles, the group observed 26 herds, in 20 different counties, that had sustained losses from this malady.

These herds normally contained 4,120 cattle, of which 1,295, or 31 percent, had been affected with the disease. The survey disclosed also that 759, or about 59 percent, of the affected animals had died. The estimated total financial loss in the 26 herds was $110,860, or an average of more than $4,200 per herd. This was exclusive of the loss, caused by the disease, in planned breeding programs and future calf crops which could not be estimated accurately. Many of the cattle in the herds observed were purebreds. Beef animals predominated over dairy stock in the ratio of about 9 to 1. No evidence was found that any animals besides cattle are affected.

The general results of the survey, as interpreted by the group, established that X-disease, or hyperkeratosis as it is sometimes called by veterinarians, is an important one affecting the cattle industry and that the losses encountered justify directed research by State and Federal agencies. To date the disease has been reported in 32 States, and in some cases it has forced beef-cattle raisers out of business.

The cause of the disease is still unknown but the survey indicated that X-disease does not result from poisoning by a specific plant, which has been one suspected cause. The possible remaining causes still suspected are (1) an infective agent such as a virus or fungus, (2) a poisonous mineral, or (3) a nutritional imbalance. The possibility of a combination of causes is also under consideration. In the course of the survey the scientists collected 75 samples of soils and plants and 36 samples of tissue from affected animals for further study. The group suggests that, until the cause of X-disease is determined, it is advisable for owners of affected herds to quarantine them voluntarily as a protection to others.

The survey resulted from recommendations adopted at a conference of State and Federal scientists and livestock regulatory officials called by the U. S. Bureau of Animal Industry, in Washington, last July. One object was to obtain all the data possible as an approach to research work. Another was to determine the economic importance of the disease. Still another was to ascertain its relation to plant life, soils, fertilization programs, and other practical aspects of cattle raising and agriculture.

Accordingly, selection of the members of the survey group was based partly on their scientific skills. They were: W. J. Gibbons, head professor of veterinary surgery and medicine, Alabama Polytechnic Institute, Auburn, Ala., on temporary detail to the U. S. Bureau of Animal Industry; A. G. Johnson, principal pathologist in the Division of Cereal Crops and Diseases, U. S. Bureau of Plant Industry, Soils, and Agricultural Engineering; W. O. Robinson, senior chemist in the Division of Soil Management and Irrigation of the same bureau; and A. M. Lee, veterinarian in the Pathological Division, U. S. Bureau of Animal Industry. The foregoing group worked closely in cooperation with scientists and officials of the States which they visited in the course of the survey.

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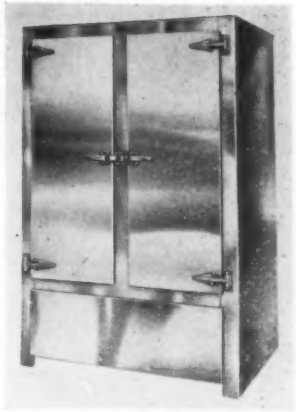

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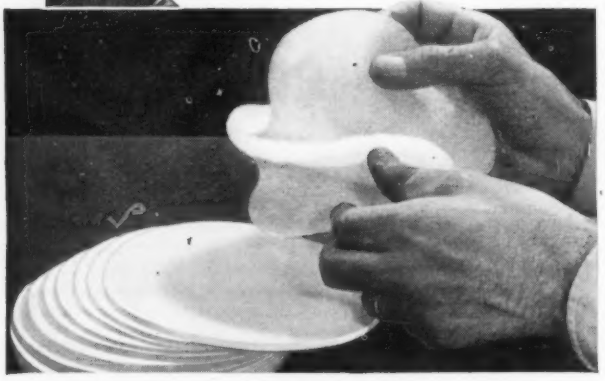

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Brandt Blasts C. I. O.

Land O'Lakes President Attacks Union Attempt to Lower the Butter Price

An attempt of the C.I.O. Political Action Committee to impress upon voters the necessity of electing a congress that will bring butter back to 60 cents a pound was attacked today by John Brandt, president of Land O'Lakes Creameries, Inc., as an injustice to the entire economy.

He cited an advertisement prepared and paid for by the C.I.O. body that appeared in *New Republic* magazine. This ad, he said, advises voters for whom they should vote to accomplish the 60 cents a pound butter price.

"I wonder what the labor leaders in America would say," he declared, "if farm leaders should prepare and pay for an ad advocating the same drastic reduction in the hourly income of labor that 60 cents retail butter will mean in the way of a reduction in the farmers' income. This would leave the farmer about 45 cents a pound for his butter at his creamery, out of which he must must be taken the manufacturing cost.

"At a price level on the wholesale market of 71 cents, which is the equivalent of about 85 cents retail per pound, the farmer receives only 53 cents an hour for the actual labor he puts in the care and milking of his cows."

The figure of 53 cents an hour, Mr. Brandt pointed out, is based on two official reports of the University of Minnesota, Division of Agricultural Economics, and the U. S. Department of Agriculture covering 201 dairy farmers in Southern Minnesota.

"Farmers are not demanding drastic reductions in the wages paid to labor," he said, "because they realize that under present conditions the economy of America cannot stand the kind of deflation that a return to 60 cents butter would bring about. This would start a progression of events that would not only mean lower income for agriculture but would also affect the earnings of labor and industry.

"Farmers and their whole families must work long hours, Sundays and holidays included, to make both ends meet at the price levels for dairy products that have prevailed the last year.

"If farmers worked only five eight-hour days, consumers would not only be short of dairy products, but would go hungry for want of a sufficient amount of food raised on our farms.

"The best way to start a depression is for farm prices to be pushed down to the point where farmers cannot make ends meet. Already prices have been drastically reduced, while the farmers' cost of operation has been materially increased"

Mr. Brandt said that there has never been a time in this generation when an hour's work would purchase as much butter as today.

He urged farmers to go out and vote on November 2 for men who are not jeopardizing the entire nation by advocating further drastic reductions in the price of agricultural products.

Jersey Man Fined

Charged with presenting false claims under the Government's wartime dairy production program, Ralph E. Robbins of Mount Holly, N. J., pleaded guilty and has been sentenced to pay a fine of $1,000. The sentence was imposed on October 11, 1948, in Federal Court for the District of New Jersey at Trenton, by Federal Judge Phillip Forman.

Keys Addresses IAICM Dinner

Dr. Ancel Keys, professor of Physiology and director of the Laboratory of Physiological Hygiene at the University of Minnesota, appeared at the Awards Dinner to highlight the nutrition research being carried out for the dairy industry.

Dr. Keys has a worldwide reputation for his experiments relative to setting up standards for rehabilitation diets in which dairy products play an essential part. He is author of many important papers on nutritional subjects and at the present time he is a member of the Committee on Food Composition of the National Research Council.

For the past five years Dr. Keys has carried on nutrition research projects supported by the dairy industry. These have included fundamental studies of the value of butterfat in human diets and extensive studies of the nutritive value and physiological effects of ice cream.

The Awards Dinner was held in the American Room, Traymore Hotel, Atlantic City, N. J., 7 p.m., Tuesday, October 26, 1948. It was sponsored by the International Association of Ice Cream Manufacturers in cooperation with the Dairy Industries Supply Association and the American Dairy Science Association to celebrate the Collegiate Students' International Contest in Judging Dairy Products. Winning students were granted research fellowships, cups were presented to the winning teams for judging milk, butter, cheese, ice cream and all products in combination and medals were awarded to individual winners for all-products judging by DISA. MIF, ABI, NCI, and IAICM awarded medals to their respective commodity individual winners—of gold, silver and bronze.

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Borden's Opens Soybean Mill

Borden's Soy Processing Company will open its new $3,500,000 solvent extraction soybean mill at Kankakee, Illinois on November 17, it was announced today by Charles F. Kieser, vice-president in charge of the Borden Company's special products operations. The formal opening will be sponsored by the Kankakee Chamber of Commerce.

At the same time, Mr. Kieser reported that Borden's is spending $1,500,000 to convert its Waterloo, Iowa mill, the largest expeller operation in the state, to the extraction system. A five-story extraction tower is under construction, and will give the Waterloo plant a capacity of 200 tons of soybeans daily.

The Kankakee plant was completed in two years, construction being hindered by material shortages. Erected on a 32-acre corn field on the city's outskirts, it includes a five-story milling building, a five-story extraction tower, a power house, a warehouse and a truck dump building connected by a 250-foot underground tunnel to the storage elevators. The plant has more than a mile of railroad siding.

Borden's new solvent extraction mill is considered to be one of the most modern and most efficient of its type. The mill has a processing capacity of nearly 6,000 bushels of soybeans per day, producing 60,000 pounds, or one tank car, of soybean oil and 135 tons, or 4½ box cars, of meal.

It has a meal and flake storage capacity of 1,000 tons. The concrete bean storage elevators will hold 900,000 bushels of soybeans. The tank farm has a finished oil capacity of 250,000 gallons, and the underground water reservoir holds 300,000 gallons.

The plant produces only soybean oil and meal, selling the oil to manufacturers of edibles and industrial products. Most of the meal is used in Borden's animal feed supplements.

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BULGARIAN *and* ACIDOPHILUS CULTURED MILKS

By **L. A. BURKEY**

Division of Dairy Products Research Laboratories

United States Department of Agriculture

BULGARIAN AND ACIDOPHILUS cultured milks are made in this country with pure cultures of bacteria. These fermented milks, like yoghurt and the other fermented milks that are common in the Mediterranean countries, are used largely because of the therapeutic and health-promoting properties claimed for them.

A number of early investigators attempted to determine the factors responsible for the healthfulness and longevity of the people of the eastern Mediterranean countries in which fermented milks are an important part of the diet. Metchnikoff's report entitled "The Prolongation of Life," which was published in 1908, stimulated considerable interested in the use of fermented milks. From these early observations and studies it was concluded by some that the benefits attributed to fermented milks were the result of the lactic acid produced in the intestinal tract by the lactobacilli in the milk. It was believed that the lactic acid prevented putrefaction and the production of substances injurious to health. As a result of this belief, in part at least, bulgarian milk became established in this country. It is prepared by the use of culture containing *Lactobacillus bulgaricus* or similar organisms.

Benefits of Cultured Milk

Following the isolation of *Lactobaccillus acidophilus* from the feces of breast-fed infants by Moro in 1900, other studies on the therapeutic properties of fermented milks led to the widely accepted theory that to be beneficial the bacteria in fermented milks must be implantable in the intestinal tract. A number of investigators showed that *L. acidophilus* was capable of growing and living for a period of time in the intestinal tract and that people suffering from certain intestinal disorders were benefited by drinking milk fermented by *L. acidophilus.* Investigators have observed also that the ingestion of milk sugar (lactose) and dextrin is beneficial and that when these sugars are consumed with acidophilus milk they aid in the establishment of *L. acidophilus* in the intestinal tract. Therefore, in preparing acidophilus milk it is a common practice to add milk sugar or dextrin to the finished product.

Other characteristics of fermented milks that may contribute to their health-promoting properties are the finely divided, soft curd forms of the proteins of these milks as they exist in the stomach, and the presence of lactic acid. Because of these properties, fermented milks are often recommended in cases of gastric disturbances and where special diets require a readily digestible milk.

Lactobacillus bulgaricus, L. acidophilus, and other species of lactobacilli are similar in many respects. The temperature most favorable for the growth of most lactobacilli is between 100° and 115° F.; they ferment the milk sugar to form lactic acid, which gives the acid taste to the fermented milk and causes it to curdle; and most of these lactobacilli grow better in milk than in most other media. In addition, the appearance of lactobacilli under the microscope is so similar that the different species are not definitely distinguishable by such an examination. Although the colonial characteristics of a single species of lactobacilli may show considerable variation on different media, the different species are very similar and can be distinguished only by an experienced technician. It is apparent that, to arrive at a definite identification, one must rely large on physiological and fermentative characteristics, which can be determined satisfactorily only by detailed laboratory studies. Since the purity and true identity of these cultures depend on constant vigilance by an experienced technician, it is not uncommon for impure or atypical cultures to be used in making cultured milks, particularly acidophilus milk. As a result, the acidophilus milk on the market often is not an authentic product.

Characteristics of These Milks

Although it is difficult for anyone except an experienced technician to distinguish between *Lactobacillus bulgaricus* and *L. acidophilus,* the fermented milks produced by these organisms are distinctly different. Bulgarian milk made with *L. bulgaricus* is a thick, rather viscous liquid; it has a characteristically clean, acid flavor and may become too sour to suit the taste of most individuals. Authentic acidophilus milk, however, usually has a weak body (soft curd) that tends to whey off on standing; it is much less viscous; and it is very mildly acid and without a pronounced flavor. The differences in the acidities and in the physical properties of these two cultured milks are due in part to differences in the rate of growth and acid production of the two organisms in milk. *L. bulgaricus* multiplies rapidly in sterile skim milk under favorable conditions, causing the milk to curdle in 15 to 18 hours, whereas *L. acidophilus* requires 24 to 36 hours to curdle the milk. Likewise, *L. bulgaricus* is capable of producing 3.0 per cent of lactic acid in milk unless its growth is checked, whereas *L. acidophilus* rarely produces over 1.5 per cent of lactic acid in milk even by prolonged incubation. However, the rate of growth of *L. acidophilus* is increased and the time required to curdle the milk is considerably shortened if tomato juice or carrot juice is added to the milk.

Propagation of the Cultures

Lactobacillus bulgaricus and *L. acidophilus* are difficult to propagate and maintain in pure culture because of their fastidious nature, exacting growth requirements, and the ease with which contaminating bacteria of various kinds may overgrow them. Therefore, optimal conditions for their growth must be provided and all chances of contamination must be prevented. For these reasons it is not uncommon for manufacturers of acidophilus milk to substitute other less fastidious species of lactobacilli, such as *L. lactis* and *L. casei,* or to use one of these cultures inadvertently, for *L. acidophilus* in making acidophilus milk. One can be reasonably certain that the culture is not *L. acidophilus* if it curdles unfortified sterile

skim milk in less than 18 hours. Although it has not been shown that *L. lactis, L. casei,* or any lactic-acid organism other than *L. acidophilus,* is implantable in the intestinal tract, these species of lactobacilli can be used to prepare cultured milks where implantation in the intestinal tract is not the primary motive.

In the preparation of bulgarian milk commercially, *Lactobacillus bulgaricus* is often used in combination with *Streptococcus lactis* or other lactic-acid producing bacteria in place of a pure culture of *L. bulgaricus.* However, unless the components of the mixed culture are selected carefully on the basis of their ability to proliferate properly and to produce a desirable flavor in milk under the desired conditions, the fermented product is likely to be unsatisfactory and not unibuttermilk to give the desired flavor and acidity. This mixed form from day to day. It is a preferred practice commercially to prepare bulgarian milk by mixing 1 part of *L. bulgaricus* cultured milk with 9 parts or other similar quantity of cultured cultured milk has much of the flavor of cultured buttermilk and contains less acid than the *L. bulgaricus* cultured milk.

Manufacturing Requirements

The successful propagation of these bacterial cultures, as of all pure cultures, requires (1) sterilized milk or other medium in which the cultures can be maintained pure and active; (2) equipment suitable for sterilizing the milk and for carrying the cultures; (3) an incubator or room that can be maintained at the constant temperature required in propagating the cultures; (4) a cold box or refrigerator; and (5) particularly careful handling of the cultures to prevent contamination by other bacteria. Since the necessary equipment, as well as experience and skill in handling pure cultures of bacteria, is lacking in most homes it usually is not advisable to undertake the making of these cultured milks in the home, nor even on a small scale elsewhere unless the above requirements can be met. However, because of frequent requests for methods of making these cultured milks in the home, a simplified method is included here along with the laboratory procedure.

Equally as important as the maintenance of pure cultures in making these cultured milks is the use of authentic cultures. The cultures should be obtained from a reputable laboratory to be sure that they are authentic and pure. Cultures made directly from commercial fermented milks are likely to contain some contaminating bacteria and, unless the commercial product is known to be authentic, there will be no certainty of the true identity of the culture nor even that it will make a satisfactory product. Authentic cultures can be obtained from the American Type Culture Collection, located at 2029 M Street, Washington 6, D. C. This organization makes a charge of $2.35 per culture, including the cost of postage. The numerical designations used by the American Type Culture Collection for authentic strains of the above cultures are as follows: *Lactobacillus bulgaricus,* 521; *L. acidophilus,* 314; *L. lactis,* 6347; *L. casei,* 7469; and *Streptococcus lactis,* 4887.

Methods and Procedures

To make bulgarian and acidophilus cultured milks it is essential to have a thorough understanding of the methods of maintaining the cultures and also of the process used in preparing the products. A pure culture of bacteria is a living population of one strain of bacteria in a nutrient medium, such as sterile skim milk, that is protected from outside contamination. Under favorable conditions, the bacterial cells in a culture increase to a maximum number in 12 to 24 hours after inoculation, and thereafter the number of living cells decreases. The number of living cells decreases considerably in 48 to 72 hours, unless the culture is placed at subnormal temperatures (60° F. or below) within 24 hours after incubation; and the culture will die eventually unless a transfer is

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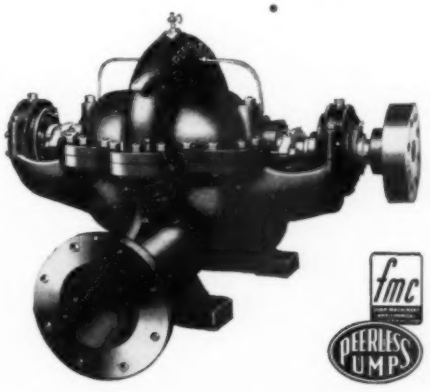

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made into a fresh medium, such as sterile milk, before a great decrease occurs in the number of living cells. Therefore, to maintain active cultures in milk, it is advisable to incubate them for 12 to 24 hours or until the milk curdles, and then store them at 60° or below until the next transfer is made; and new transfers should be made at intervals of not more than 48 hours. Cultures can be kept alive for several weeks without being transferred if, after incubation for 18 hours, the cultures are stored in a refrigerator below 60°. The addition of 5 per cent of tomato juice or carrot juice to the milk increases the rate of growth of *Lactobacillus acidophilus*, and the addition of 0.5 per cent of tryptone or yeast extract to the milk for carrying all lactic acid bacteria greatly increases their rate of growth and extends their longevity in storage.

Transplanting the Culture

When a pure culture is received from the laboratory, a small quantity should be transferred aseptically into sterile milk as soon as possible. If the culture is *Lactobacillus acidophilus*, 5 per cent of tomato juice or carrot juice should be added to the sterile milk to be used. If a culture is handled carefully and transferred every 2 days, it can be maintained pure and active indefinitely. The freshly made transplant should be incubated at the optimal temperature of the organism for 12 to 24 hours, or until the milk curdles. (The optimal incubation temperature for most lactobacilli is 100° F., but for *Streptococcus lactis* it is 70°.) The culture should then be held at a lower temperature (50° to 60°) for the remainder of the 48-hour period, when a new transfer should be made. It is advisable to retain the old culture until it is certain that the new one is satisfactory for use.

The culture used to inoculate or set the milk that is to be fermented is called the "starter culture" or "starter." When a larger quantity of starter is needed than can be supplied by using the culture that is left over after the fresh transplants are made, the starter must be prepared the day before it is to be used. The cultures that are carried with frequent transfers and that are used to set the starter cultures are commonly referred to as the "mother cultures." These cultures should be prepared with great care and, where batches of fermented milks are prepared frequently, they should be transferred daily. It is advisable also, especially where the fermented milks are prepared commercially or where their preparation is to be continued for a number of months, to maintain cultures in reserve in case the mother cultures become contaminated or lost. Such cultures are the "stock cultures." It is preferable that stock cultures be carried in sterile milk to which 0.5 percent of either tryptone or yeast extarct is added before sterilization. Under these conditions fresh transfers need be made only about twice a month if, after they coagulate the milk, the cultures are held at a temperature not over 60° F.

Sterilization—Particular care is required to maintain the mother culture. The milk used in making transfers and the equipment coming in contact with the milk (after sterilization) should be sterilized carefully and protected from contamination from the air and should not be touched by the fingers or other parts of the body. The milk and equipment should be sterilized by heating in an autoclave or pressure cooker under 15 pounds of steam pressure for 15 minutes. Sterilization at boiling temperature (212° F.) requires an hour or longer to be reasonably effective, and even this will not insure that the milk is completely sterile.

In the laboratory, the milk usually is sterilized in test tubes or small erlenmeyer flasks. When these glass containers are not available, however, half-pint milk bottles or nursing bottles may be used. The glass containers are filled half full of fresh skim milk, and the mouth of each is plugged with nonabsorbent cotton or covered with a loose-fitting lid. After the sterilization is completed, the containers of milk should be cooled in the air until they can be held comfortably in the hands. Then they should be placed in water at 100° F. (or at the proper incubation temperature for the culture) for 5 or 10 minutes or until it is certain that the milk is cooled to the proper temperature before the culture is added. The cotton stopper or lid should not be removed except while the culture is being added. It is a good practice to sterilize several bottles of milk at one time. If the bottles are kept covered, they can be kept sterile for a few days, or until they are needed for making new transfers. Before the culture is added, the bottles of sterile milk should be heated to the proper temperature for the culture by placing them in a pan of water which is maintained at that temperature.

Sterile pipettes are used for transferring cultures in most laboratories. However, where these are not available and where large-mouth containers are used for carrying the culture, sterilized teaspoons are suitable for transferring the culture. A number of teaspoons can be wrapped in heavy paper, either singly or in one package, and sterilized along with the milk under 15 pounds of steam pressure for 15 to 20 minutes. The spoons that are not used will remain sterile if they are kept wrapped and are not exposed to the air or other means of contamination.

Dairy Daze

By Edgar Allen, Jr.

"DISHPAN HANDS!"

Inoculation or transfer of the culture—By means of a sterile pipette or a sterile spoon, remove 5 milliliters or a teaspoonful of curdled milk from the culture and add it to the flask or bottle of sterile milk that has been brought to 100° F., or to the proper incubation temperature; replace the cotton or cover, and stir the mixture by a gentle whirling motion. Then keep the flask or bottle of inoculated milk at the proper incubation temperature for 12 to 24 hours, or until the milk curdles. The time required to curdle the milk culture will vary with the amount of the inoculum and with the different cultures. Since the point at which it is observed that the milk culture curdles indicates roughly the maximum development of cells, further incubation will tend to reduce the activity of the culture. Therefore, soon after the milk cultures curdle, place them in a cool place or in a refrigerator until the next transfer is made. When cultures are needed each day, transfers should be made daily; otherwise transfers should be made every 48 hours to maintain an active culture. After the new transfer is made the remainder of the culture may be used to inoculate the batch of heated milk for the fermented milk.

Preparation of Bulgarian and Acidophilus Cultured Milks

Almost as much care is required in the preparation of cultured milks, especially those made with pure cultures of *Lactobacillus bulgaricus* and *L. acidophilus*, as is required in the propagation of the cultures. Even though it is not advisable to use the prepared cultured milks as the starter or mother culture in preparing subsequent lots of cultured milks, they are in reality bacterial cultures and contaminating bacteria present in the milk or coming from unsterilized equipment may overgrow the essential organisms, and the result will be an inferior product or even one that is unfit for use. Therefore particular care should be taken in the selection of the milk to be used, in the heating or sterilization of the milk, and during the inoculation and incubation of the milk to prevent all possible contamination. The skim milk to be used should be fresh and of good quality, that is, it should come from the separation of high-quality whole milk which has been produced and handled under sanitary conditions.

Preparation of Bulgarian Cultured Milk

Laboratory or Large-Scale Procedure—1. Place 1 liter of fresh skim milk in each 2-liter erlenmeyer flask; plug the flasks with nonabsorbent cotton; and sterilize at 15 pounds of steam pressure for 20 minutes. In large-scale production where the cultured milk is prepared in a vat, the milk should be heated at 160° F. or higher for 20 minutes with constant or frequent agitation.

2. If *Lactobacillus bulgaricus* is to be used as the starter, cool the milk to 100° F., add 1 percent of starter, and mix thoroughly. Hold the inoculated milk at 100° for 12 to 18 hours, or until it curdles and the desired acidity has developed (about 1.0 percent of lactic acid). If a mixed culture containing *Streptococcus lactis* is to be used as the starter, cool the milk to 86° before adding 1 percent of starter, and hold at that temperature for 12 to 18 hours.

3. After the milk has fermented to the desired acidity, cool to 50° F., mix 5 percent of pasteurized 30-percent cream with the curd, and break or stir the curd to a smooth consistency.

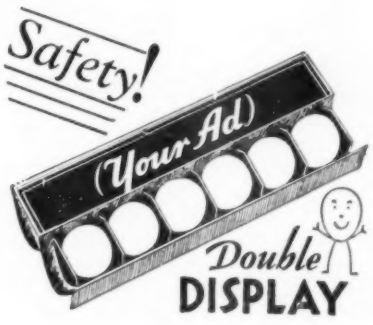
4. Pour the milk into sterile bottles, cap the bottles, cool to 50° F. or below as quickly as possible, and keep the bottles in a refrigerator at 50° until they are used.

Home or Small-scale Procedure—1. Either fresh skim milk or a good grade of commercially canned evaporated milk can be used in making bulgarian cultured milk in the home.

(a) If fresh skim milk is to be used, heat the milk in

(Please turn to Page 72)

"The Dairyman's Carton"



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LET'S SPLIT THE NICKELS

Nickels, Dimes and Quarters are Under Closer Observation These Days as Advocates of Three New Coins Whip Up the Monetary Horses

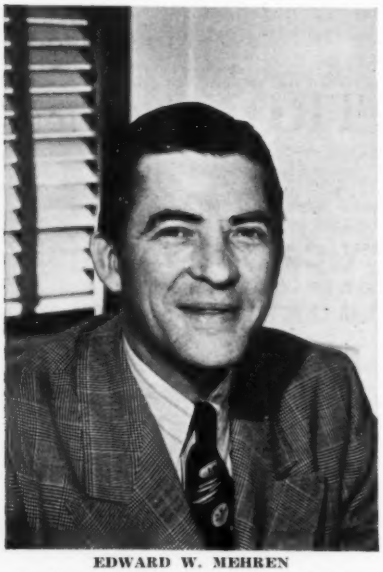
By **HUGH ROBINSON**

NEVER ONES TO DO things by halves, Americans are now faced with approving and supporting or disapproving and fighting the rapidly growing idea to institute 2½, 7½ and 12½c coins into the nation's monetary system.

The current champion of the fractional coin idea is Edward W. Mehren, president of the Squirt Company, a Beverly Hills, California soft drink concern. Since its inception Mr. Mehren has fought for a fractional coin system with every legitimate weapon at his command. He has not yet won his fight but he has accomplished the primary objective of getting people interested in the proposal. The next step is up to the people.

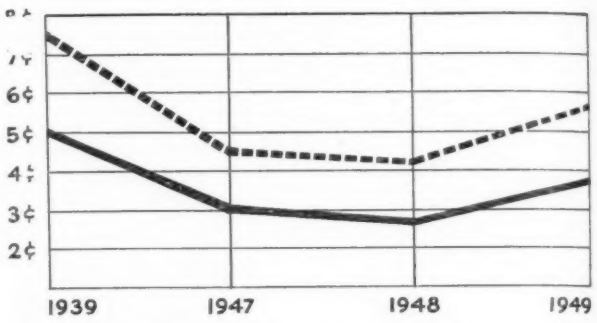
That the people are doing something is evidenced by the answers received to inquiries regarding this matter. The idea of additional coins has been introduced to Congress by Representative Donald L. Jackson of California and by bills now on the agenda for the next Congress introduced by Representative McCormack of Massachusetts and Representative Busbey of Illinois. Businessmen throughout the country are giving serious thought to the proposal, especially those in the dairy, soft drink and vending industries.

There are several reasons why these people favor the minting of additional coins. Remarks of Mr. Mehren's that have been introduced into the Congressional Record state the factional coin case. "Seventy years have passed since we have changed the variety of small coins in our United States currency," says Mr. Mehren, "yet in that period we have progressed from a simple, to a highly industrialized and complex society. A greater variety and quantity of limited price products and services are now available to our people than ever before in history. It is time we re-examined our small coinage to determine if it has adequate flexibility, convenience, and economy for our modern society."



EDWARD W. MEHREN
President of the Squirt Company and champion of the fractional coinage proposal.

Savings to consumers and businessmen that would result if the system were to be adopted, run into billions of dollars every year. As an example, the soft drink industry sold 20 billion bottles of pop last year at a price that might have been reduced but for the lack of a fractional coin. New York subways



According to advocates of the new coins, the nickel of 1939 is worth less than four cents today. The above chart shows seven and a half cents in 1948 as the equivalent of five cents in 1939. It is this fact, that proponents of the measure say, requires a new coin to fulfill the function of yesterday's nickle.

carrying 4 million passengers a day raised prices from a nickel to a dime for the lack of a 7½c piece. And that's not counting the great dairy industry which sells milk and milk products at prices, that if shaved all the way down the line, might reach the consumer for ½ to 2½ cents less. These are but a few examples of possible consumer savings.

The idea has not been proposed as a cure all for inflation but is not unreasonable to suppose that the fractional coin would provide a means for a more gradual adjustment of prices.

The biggest objection to the plan is the objection to the changes that would be required to cash registers, bookkeeping machines, coin sorting and counting machines and certain computation machines. Another objection is the loss of column space in adding machines and various other calculating machines.

But says Mr. Mehren, ". . . machines represent capital investment whereas the savings that would result to the consumer through these new coins would be annual savings on a consumer level and hence a great benefit to the entire economy."

Advocates of fractional coinage point to the large groups of commodities priced at 5c and 10c or multiples of these two coins. Goods do not just happen to reach the market at prices coincidental with existing coins, the champions of new coinage say, but are priced for convenience. Sometimes that convenient price forces the article to be sold for a dime instead of a nickel. There are times when the reverse is true and the producer or manufacturer has to take an extremely low profit because raising the price to another nickel multiple would reduce sales to a point where he could not operate. The idea to be driven home, according to Mr. Mehren, is that it has become necessary to institute the equalizers, in the form of 2½, 7½ and 12½ cent coins.

Representative Jackson has said in regard to this particular phase of the question that ". . . an article which might well be priced at 7½c from the standpoint of its true value is frequently, for the purpose of facility in bookkeeping, etc., priced at 10c. This is done through no desire of the retailer to realize an exorbitant profit on his transaction, but it is a matter of simple economy in the transaction of his business."

The general consensus among vending men seems to be favorable. Those in the vending industry feel that so long as the design of the coin does not conflict with ones now in existence and are made of any metal except steel the coin itself will present no problem and will provide a convenient way to adjust prices closer to where they should be.

With our highly complicated pricing system some people feel that more coins would bring chaos to an already confusing scene. Supporters of the scheme point out that some States have sales tax tokens and bus, trolley, and train tokens are used to overcome the inflexibility of standard coins. These private or semiprivate tokens are tantamount to additional coins and would be done away with to a large degree if fractional coins were minted.

Mr. Mehren also declares that, ". . . in deflationary periods, our present coins are too limited to permit a gradual retrogression in price levels in the limited price field. For example, fifteen cent items stay at that convenient price until they can be profitably sold at a dime. And they are grossly overpriced for the greatest part of the waiting period. If we had convenient in-between coins, the price would recede from fifteen cents to twelve and a half cents earlier, with consequent healthful impact on the national economy. In-between coins would help accelerate a healthy deflation at all price levels."

It has been over a half a century since the American coinage system has seen a change, advocates says, yet in that time Americans have come to know, and accept, all manner of other changes that would improve their lives and facilitate business activity.

"Here is no 'wild money' scheme," says Congressman Jackson, "but rather a logical and sensible coinage suggestion. It should result in the savings of millions of dollars to American consumers every year when and if the coinage plan is adopted."

Speaker of the House Joe Martin is reported to be in favor of the fractional coinage proposal. Mr. Martin is quoted as saying that he saw "nothing sacred" in the present order of coins and that he agreed with Representative McCormack that having a new coin between the nickel and the dime would be a saving to consumers.

Latest recruit to the new type coinage camp are newspaper publishers who see the necessity of an increase in the cost of newspapers. Effective October 1, 1948, Los Angeles papers went to 7 cents from the previous nickel.

Press, radio, and magazines have given considerable space to the idea. Mr. Mehren lists 41 magazines that have carried stories on the proposal and names 15 newspaper columnists who have discussed the proposition. In August a newspaper column entitled "The American Way" by George Peck took up the matter of fractional coins. Mr. Peck's column is carried by 3,600 newspapers.

Perhaps one of the most telling arguments in the fractional coinage arsenal is the fact that for years merchants on the New York fruit and vegetable market have employed the term "shilling" in quoting prices. And a shilling, yes, you've guessed it, is 12½ cents.

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Waukesha 100% SANITARY PUMPS
Dependable Product of a Responsible Manufacturer

NADEM Holds Fall Meeting

Seaview Country Club Scene of Much Activity During Two Day Meeting

THE ANNUAL FALL MEETING of the National Association of Dairy Equipment Manufacturers was held September 23 and 24 at Seaview Country Club, Absecon, N. J., and was attended by officials and representatives of twenty-four different companies.

The two day meeting was presided over by NADEM Chairman, E. B. Lehrack of The Creamery Package Mfg.

Left to right: First row—T. Burress, H. P. Faust, H. L. Miller, E. B. Lehrack, C. M. Fistere, E. L. Slayton, R. F. Anderson and W. E. Gunnerson. Second row—K. L. Wallace, W. Maguire, W. Wachowitz, J. E. Mistarz, W. W. Cavanaugh, R. R. Watt, E. Howe and E. N. Fox, Jr. Third row—R. Bode, J. Barron, F. Hinricks, H. Solie, C. Derleth. Fourth row—G. Houran, D. G. Colony, J. Cherry, J. Rosen, J. Farley, B. Breitzke. Fifth row—B. M. Norum, P. L. Miller, S. Tuttas, P. Girton and D. Burrell, III.

Company, who stated that, "The consensus of opinion at the meeting was that today more than ever, the Dairy Industry should take full advantage of modern sanitary equipment to help offset rising costs of both materials and labor."

Charles M. Fistere, Executive Secretary of NADEM, reported on the Washington situation and highlighted the government programs affecting the Industry. The program consisted principally of Round Table discussions. Discussion leaders included: T. A. Burress, The Heil Co.; D. G. Colony, Manton-Gaulin Mfg. Co.; H. P. Faust, R. G. Wright Co.; E. N. Fox, Jr., The Pfaudler Co.; Paul Girton, Girton Manufacturing Co.; F. Hinrichs, Tri-Clover Machine Co.; Walter Maguire, Maguire Machinery Co.; Harry Miller, Chester Dairy Supply Co.; D. M. Mojonnier, Mojonnier Bros. Co.; Earle L. Slayton, Cherry-Burrell Corp.; Harold Solie, General Dairy Equipment Co., and C. M. Fistere, NADEM Executive Secretary.

Dr. D. A. Fitzgerald Speaks

Because of the importance of the Marshall Plan in its relationship to the dairy industry, Dr. D. A. Fitzgerald, Director of Food and Agriculture of the Economic Cooperation Administration, discussed the world food situation and the prospects of dairy equipment manufacturers' participation in the program.

The NADEM Annual Fall Golf Tournament, conducted by J. L. Rosen, Illinois Creamery Supply Co., was won by Howard Faust, president of R. G. Wright Company, Inc.

NADEM member companies and their representatives at the Seaview meeting included: ALLOY PRODUCTS CORP.—Walter Wachowitz; ANDERSON BROS. CO.—R. F. Anderson and W. E. Gunnerson; CHERRY-BURRELL CORPORATION—David Burrell, III, John Cherry, John Farley and Earle L. Slayton; CHESTER DAIRY SUPPLY CO.—Harry Miller and Peter Miller; CHICAGO STAINLESS EQUIPMENT CORP.—B. Breitzke and J. E. Mistarz; THE CREAMERY PACKAGE MFG. COMPANY—E. B. Lehrack and Fred G. Jones, NADEM Director of Publicity; CROWN CORK & SEAL CO.—Stanley Dennis; THE DE LAVAL SEPARATOR COMPANY—G. A. Houran; GENERAL DAIRY EQUIPMENT, INC.—Harold Solie and B. M. Norum; GIRTON MANUFACTURING COMPANY—Paul Girton; THE HEIL CO.—Tom Burress and Sam Tuttas; ILLINOIS CREAMERY SUPPLY CO.—J. L. Rosen; KUSEL DAIRY EQUIPMENT CO.—Clark Derleth and D. L. Kusel; MAGUIRE MACHINERY CO.—Walter Maguire; MANTON-GAULIN MFG. CO.—D. G. Colony; MOJONNIER BROS. CO.—D. M. Mojonnier; THE PFAUDLER CO.—E. N. Fox, Jr.; THE SHARPLES CORP.—Ralph L. Young; STAINLESS & STEEL PRODUCTS CO.—J. H. Barron; TRI-CLOVER MACHINE CO.—R. M. Bode and F. Hinrichs; WALKER-WALLACE LIMITED—K. L. Wallace; WAUKESHA FOUNDRY COMPANY—Emil M. Howe and R. R. Watt; R. G. WRIGHT COMPANY, INC.—H. P. Faust; YORK CORPORATION—W. W. Cavanaugh.

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Plan 1949 Dairy Month

June Dairy Month sponsors and committee representatives met in Chicago recently to discuss plans and policies for the 1949 Campaign. The highly successful 1948 Campaign was also reviewed in detail, and unanimous approval of the organization procedure was expressed by the group. The sponsors also voted unanimously that DAIRY MONTH be observed in June 1949 under the direction of NDC. Reading

Committeeman and sponsors of June Dairy Month as they posed before a backdrop of campaign posters and publicity releases used in last year's highly successful campaign.

from left to right, Dwight Northrop, National Dairy Council, Harry Bresler representing Ice Cream Merchandising Institute, W. E. Lovell representing National Ass'n of Retail Ice Cream Mfgrs., Hugh Norris, representing Affiliated Dairy Council Units, G. F. Snyder, Armour and Company, E. W. Gaumnitz, National Cheese Institute, Neal Kelley, National Dairy Council, Charles Speaks, Milk Industry Foundation, G. W. McKerrow, representing National Cooperative Milk Producers Federation, Milton Hult, National Dairy Council, O. M. Richards, American Dairy Ass'n, O. E. Anderson, Ohio Dairy Products Ass'n, Robert North, International Ass'n of iCe Cream Mfgrs., A. J. Kainz, National Ass'n of Ice Cream Mfgrs., Carl Deysenroth representing Illinois Dairy Products Ass'n, Ray Alberts, American Butter Institute, W. A. Jimison, Borden Co., Fred Jones representing Dairy Industries Supply Ass'n, Claude Snider, National Dairy Council.

• Review Want Ads Pay •

Dairy Manufacturers Meet

Twenty-six speakers from eight states are scheduled to address the annual three-day Dairy Manufacturers conference sponsored by the University of Illinois dairy technology division, announces Dr. P. H. Tracy, program chairman.

The dates are November 10-11-12, and the place is Galesburg, Illinois, at the University's campus there. More hotel space is available there than at Champaign-Urbana.

"A worthwhile program has been planned to cover today's important problems in procuring, processing, and distributing milk and its products," Professor Tracy explained. He was assisted by H. C. Rountree, University extension division, in planning the program.

Ninteen dairy processors and visiting professors will speak, along with seven men from the Illinois College of Agriculture. Speakers are coming from California, New York, Delaware, Michigan, Indiana, Ohio, Wisconsin, and Illinois, and representatives from Purdue, Michigan State College, and the Universities of Wisconsin, Chicago, and Illinois will address the delegates.

A dinner meeting on November 11 will be handled by the student dairy technology society of the College of Agriculture, with entertainment provided by students.

The complete program follows:

Wednesday, November 10: The Use of Reduction Tests in Determining Milk Quality, F. J. Babel, Purdue University; Western Methods of Milk Handling, George Armerding, Oakland, California; Problems in Dairy Plant Operations, R. J. Ramsey, Cleveland, Ohio; Some Recent Studies of High Temperature Short Time Heating of Milk and Milk Products, E. O. Herreid, University of Illinois; Flavor Production by Citric Acid Fermenting Organisms in Cultured Buttermilk and Cottage Cheese, F. J. Babel, Purdue University; New Developments in Methods of Condensing Milk, George Armerding; Oakland, California; Uses of Dairy Products in the Baking Industry, W. B. Bradley, Chicago.

At a dinner meeting November 10, R. M. Nolen, University of Illinois, will discuss "What Significance Have Current Trends in the Business Cycle?"

Thursday, November 11: Factors Influencing Acid Production by Cheese Cultures, F. J. Babel, Purdue University; Manufacture and Storage of Cottage Cheese, S. L. Tuckey, University of Illinois; Problems in the Marketing of Butter, Orval Ause, Chicago; How Can We Improve Our Ice Cream Selling Methods?, Phillip Sang, Chicago; Controlling Fat Losses, L. C. Thomsen, University of Wisconsin; How the Editor Views the Ice Cream Industry, Vincent Rabuffo, New York City; The Chemistry of Butterfat, J. P. Kass, Wilmington, Delaware; What Is New in Mix Making, P. H. Tracy, University of Illinois.

James G. Hays, Michigan State College, will speak at the banquet November 11.

Friday, November 12: Effect of Heat Upon the Physical and Chemical Properties of Milk, J. P. Kass, Wilmington, Delaware; Training Employees to Operate Single Service Milk Container Filling Machines, Albert Lakin, Detroit, Michigan; Prices of Milk and Dairy Products, R. W. Bartlett, University of Illinois; Labor's Responsibility in the Future Development of the Dairy Industry, August Burnier, Chicago; Dietary Factors Affecting Longevity, Helen Oldham, University of Chicago; Manufacture of Dairy Spreads, S. L. Tuckey, University of Illinois; Effect of the Shape of the Weigh Tank on the Variability of the Fat Test, E. O. Herreid, University of Illinois; Manufacture of Topping, Harry Pyenson, University of Illinois.

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Marketing opportunities are always attractive for condensed whole milk or skimmilk, ice cream mix, spray process dry whole milk, or non-fat dry milk solids made with a Rogers Vacuum Pan or Rogers Spray Process Milk Drying Plant. Whether your plant is large or small, you can select a Rogers installation that will profitably meet your production needs.

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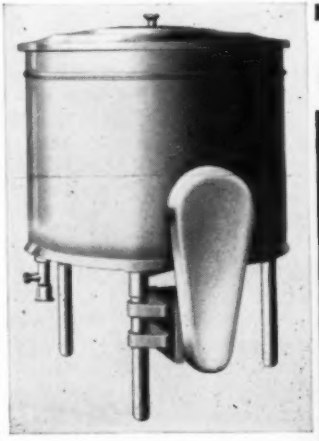

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We build them in many capacities and styles for standard or special uses.

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THAT EXTRA BUSINESS PROBLEM

Kligerman Dairies in Atlantic City Has Developed a Flexible System That Meets the Variation of Resort Business

By **PHIL LANCE**

"AT LEAST TWICE A YEAR, we find ourselves facing the same situations," says Sam Kligerman, secretary Kligerman Dairies, Atlantic City, N. J., and that is, how to handle added periodic business.

"By this I mean how to handle business that we get from vacationers. In this part of the Southern Jersey Shore, we are faced with an added business load during the summer season and the fall part of the year.

"While we are organized to handle our regular business, we can not ignore business obtained during these seasons, as it is quite sizable and means just as much to our dairy as it does to the added income of our routemen. After our dairy was confused for a few seasons, we were able to work out a method of handling this extra business that is just like regular routine today."

Regular Rates Insufficient

As there is an influx of vacationers during the seasons, regular routemen were not capable of satisfactorily servicing regular customers and new ones at the same time. This meant that new routemen had to be added during this temporary situation.

"We couldn't hire just anyone to be a routeman," says Sam, "as in all probabilities customers wouldn't be served properly and we wouldn't be getting the bulk of the business that they should. Temporary employees usually aren't careful about their jobs because it is temporary, and yet we had to employ short term help."

Sam Kligerman thought that his best temporary employee was one who was seeking part time work, was educated, and was responsible to an outside authority for their actions.

It was his decision to employ college students as they filled his requirements satisfactorily. First, student vacations coincided with his dairy rush season. Secondly, they would handle their routes with care as he intended to re-employ them season after season and they could use the extra money while staying at a resort area, and thirdly, they were well educated and were responsible to their institutions.

With this in mind, he contacted a few colleges in surrounding areas and their employment departments supplied him with a number of students. Employees for plant work were selected in the same way.

"We have had to change an employee here and there," Sam points out, "either because they left college or had some other employment offered them. But this turn-over is so small that it amounts to one or two employees during any season at the most."

The next thing that was done was to divide up routes. As routemen serve this area according to territories, during seasons, routemen were given smaller territories so that they could serve and try to add as many more customers as possible in their own areas. As there are many rooming and boarding houses that get the influx of traffic, more time had to be spent at these properties by routemen to supply the newcomers. Therefore smaller territories for routemen during these periods were decided upon as being the best way of canvassing for new customers.

At the close of the season, with vacationers leaving for home, territories are consolidated again as the "extra employees" are released and are ready to go back to school.

Immediate Service Demanded

During the seasons, numerous restaurants, hotel kitchens and other food shops open. Usually, the bulk of them open at one time and if this dairy is not prepared to meet their requirements immediately, it is likely that they will lose their business for the entire season.

"Because of this situation, it is necessary that we be prepared to serve these seasonal outlets immediately upon notice," says Mr. Kligerman, "and we have been able to do so."

About a month before the opening of a season, a canvass is made of all the areas supplied by the Kligerman Dairy. Hotels are visited, restaurant openings noted, grocers and other retailers visited. During these visits, the dairy obtains a general idea from each about the quantity of the dairy products that each will need.

Although these are rather rough estimates and basing one season on a past one may not be accurate, it gives this dairy a general idea of what to expect. With this information, extra bottles, cases, milk and milk products, trucks and extra help needed, forms a nucleus for the seasonal situation. And with the opening of the season, the Kligerman Dairy is prepared to service all regular and new business.

"Seasons in this resort area provide us with a sizeable amount of business," points out Sam Kligerman, "and as we want to obtain as much of it as possible, we have to be prepared for it. At the present time, I can say that we have licked many obstacles that confronted us before we prepared ourselves as we are now doing, from one season to another."

●

BORDEN DIVISION PROMOTIONS

Three promotions in the Grocery Products Division of the Borden Company were announced today by Walter T. Fitzpatrick, assistant vice president of the company and director of sales for the division.

Sam D. Thompson, who has been sales manager for Borden's Instant Coffee and Instant Mix, was advanced to the newly created position of general sales manager. In this capacity he will direct all field operations.

J. O. Bickmore, assistant director of sales, takes over the newly created position of general merchandising manager, handling product promotion, advertising and office management.

Ben C. Potter, formerly assistant to Mr. Thompson, was named product merchandising manager in charge of coffee and Instant Mix.

Mr. Fitzpatrick said the appointments were being made to increase the effectiveness of the division's enlarged sales, sales promotion and advertising programs.

The Seal that lives... *and lets live*

Christmas Seals live throughout the year . . . make possible 365 days of tuberculosis education, X-ray examination, patient rehabilitation and medical research.

The result? Since 1907 it is estimated that they have helped save an average of *ninety thousand lives a year.*

As always, the 1949 program of the tuberculosis associations will be financed by your purchase of Christmas Seals. So please, take just a moment — send in your contribution today.

Buy Christmas Seals

Because of the importance of the above message, this space has been contributed by

AMERICAN MILK REVIEW

IOWA VICTORY

(Continued from Page 12)

the winning team, and one to Ohio the runner-up. The runner-up award was an innovation presented in memory of Professor Robert B. Stoltz, former head of the Dairy Department at Ohio State. Professor Stoltz died suddenly on September 28 after devoting a lifetime to the dairy industry.

●

CUPS, SPOONS, AND TRIERS

When Roberts Everett announced that Tennessee had won the Butter Cup it didn't register with the Volunteer boys. Other teams in the vicinity of the Tennessee table in the banquet hall called their attention to the fact and the team with their coach went to the rostrum to receive the award. Perhaps even more spectacular than their triumph was their neckwear. They all had on bow ties.

Those Lewis twins from Ohio State, Dick and John, really are a team. John placed second in butter but happened to be out of the room when his name was called. His brother, Dick, calmly took his place and received the award with nobody but the Ohio group aware of the shennanigans. John N. Lewis eventually got the medal even though the speaker declared that second place in butter had been won by John *L.* Lewis.

Wedding rings were much in evidence among the contestants. It would have been a good deal if one of the spliced boys could have placed high enough so that he could have received an award from the hands of his wife. Closest to such a romantic situation was the presentation of the gold medal to Don Phlueger by his mother. It was a very nice gesture.

While Robert Rosenbaum, past president of DISA, was making the All Products team awards, Ben Brown, Vice-president of IAICM was quietly plucking a few flowers from the table decorations. On the conclusion of the All Products awards Mr. Brown presented his handiwork to Mr. Rosenbaum, who happens to be in the vanilla business, with the words "He has supplied the entire United States with vanilla from one bean." Mr. Rosenbaum responded by kissing Mr. Brown on both cheeks.

A remarkable variety of jaw work was observed among the contestants as they sampled the products to be judged. Some chewed rapidly, some daintily, some with a monastic air of reflection. Milk samples came in for a substantial amount of horizontal motion as though the boys were using a mouth wash.

How to keep the taste buds clear of accumulated flavors is a real problem. Many of the contestants were using water with a pinch of salt. Mike Woynar, University of Massachusetts, carried a good Connecticut Valley MacIntosh apple which he nibbled at from time to time. He says that it really does the business.

A heavy off shore wind was blowing the crests away from the breakers as they galloped in from the sea. Looking out of the windows in the judging hall one could see them, like grey stallions, hammering away at the beach.

Wisconsin supplied the only girl in this year's contest. She is Winifred Rogers of Lake Mills. She continues the precedent established last year of female participation in what had been until that time (except for the cows) a strictly stag affair.

The Texas team drove up from the Lone Star State in an "ole beat-up Ford." It took them about five days to make the trip although the hardest job was getting out of Texas. It required two days to do that. The big question was whether or not the car would hold together until they got back to Lubbock.

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IT WAS A REAL SHOW

(Continued from Page 10)

through the system. Most of the new designs in this type of equipment are shooting at economical fuel consumption through as complete a utilization of heat as possible. Recent work in cleaning research has revealed the fact that water at a specific temperature of 115 degrees does the best job. This fact has placed a premium on heat control devices and the new models are featuring automatic regulation plus speed of generation.

Compressors are likewise aiming at economy of performance. Some excellent refrigeration hookups were shown but unobtrusive refinements rather than startling innovations characterized this phase of dairy plant equipment.

Running neck and neck with the attractiveness equipment on display and at times exceeding it were the give-aways employed by exhibitors to either draw visitors or to plug a product name. Women were the most avid collectors of the free samples although there were some men who had the bug. Ranking pretty close to being the smartest item for free was a shopping bag, the principal use of which was to hold other free loot. An ice cream cone manufacturer gave away walking sticks. So popular were they that at the end of the second day he was forced to put in a hurry up order for an additional 5000. Plastic spoons, large, heavy envelopes for carrying literature, whistles, nail fines, pencils, lapel pins made of bottle tops, and even ball point fountain pens were on the free list. Grand champion of the hurry, hurry, hurry-get-on-the-inside-for-a-dime phase of the show was the presence of the great Bob Feller. Mr. Feller spent his time in the popsickle booth and gave out autographs and smiles to all who could get within range.

In its over-all aspects the show was a triumph in organization and the techniques of industrial exhibiting. For dairymen, anxious to see what was new, the show was the last word. DISA officials declared that the quality of attendance was in the blue ribbon class. The boys who say yes and no were definitely on the prowl. Many firms reported substantial sales made on the floor while other firms who were not taking orders said that they were compiling excellent prospect lists. Possibly the very best criterion of the state of affairs in the dairy industry was the fact that a prominent financing company also had a booth at the show. Not only was there a tremendous amount of equipment on display but the mechanism for financing its purchase was also present. Both segments of the industry were doing a healthy business.

●

FOOD PARCELS SHIELD

In conjunction with the Economic Cooperation Administration, a new label bearing the E. C. A. emblem is being attached to all food parcels being sent abroad by Overseas Associates, Inc., of 136 West 22nd St., New York 11, one of the largest shippers of food parcels to Britain and the Continent.

Representing a U. S. shield with stars and stripes, the new label carries the following official legend:

"The United States of America has paid the ocean transportation of this gift package as part of the European Recovery Program . . . Making possible a reduction in the postage paid by the sender."

The new label will have a two-fold effect in carrying a message to the recipients abroad and identifying the parcel as a gift from a private person in the U. S. which is in part subsidized by the Government, and therefore eligible for duty-free entry provided for relief packages in agreements with each country.

●

CREAMERY REMAINS BURN

Duchesne, Utah—Fire was discovered recently in the wreckage of the Wilkins Brothers Creamery. Two years ago the creamery caught on fire and burned beyond repair, destroying the boiler room, loading station, butter and cheese manufacturing compartment, pasteurizing equipment and the office. In other words the building was completely gutted, but the fire was controlled before the north end of the structure was destroyed. It was this part of the building that burned the other evening, along with the big butter churn which survived the previous fire.

Wetting Agent Cleaning of Milking Machines

By **DAVID LEVOWITZ**

THE SEPTEMBER ISSUE of the American Milk Review carried an extensive abstract of a study conducted by Dr. Levowitz on the subject of Wetting Agent Cleaning of Milking Machines. The work covered a period of nearly four months and went into exhaustive detail.

The reason for undertaking the study is set forth in Dr. Levowitz introduction to his published report. "The Sanitary Code of the Department of Health of the City of New York," Dr. Levowitz says, "in its provisions governing milk and milk products, states in Regulation, 43, Methods of cleansing utensils, apparatus, etc.:

> "All containers, receptacles, strainers, apparatus and other utensils used in the handling or transportation of milk or cream must be rinsed with clean water after being used, scrubbed with brushes and an alkaline solution and then with boiling water or steam, and all tank cars, storage tanks, tank trucks, bottles and cans used in the storage, handling or transportation of milk or cream may be cleansed by such other method of sterilization as may be specified and approved by the Commissioner of Health, and so stored and kept as to be free from contamination until again used. (Amended August 8, 1928.)"

"It is seen that with respect to specific pieces of equipment, the Commissioner of Health permits sterilization by other approved means than boiling water or steam. No provision is established, however, for cleaning any equipment other than by first rinsing with plain water, than scrubbing with brushes and an alkaline solution.

"A neutral sulfated monoglyceride whose effectiveness in cleaning cold milk-handling equipment had been established in other sections of the country, where regulations are not so clearly defined, was thus "illegal" for use in the New York milkshed, by virtue of its hydrogen ion concentration.

"It had been hypothecated, from reviews of experiments, that the very step of rinsing cold milk-handling equipment directly after use with plain water was, in itself, a detriment to efficient removal of dairy residues; but the present wording of Regulation 43 makes it "illegal" to add anything to the first rinse water.

"The New York City milkshed is recognized, internationally, as being a most carefully policed one; other areas are progressively adopting regulations patterned after the New York code. The manufacturers of the neutral sulfated monoglyceride were anxious to learn what might be done to obtain an immunity from the rinsing-with-water-and-brushing-with-alkali steps mandated by Regulation 43.

"At a conference with officials of the Milk Sanitation Division of the New York City Department of Health in May, 1947, the theoretical aspects of following cold milk-handling equipment use with a solution of neutral monoglyceride were reviewed. Observations made in various sections of the country, showing how this procedure facilitated cleaning, were reported.

"The officials informed the manufacturers' representatives that, when a code specification was found to have been made obsolete by industry's advances, it was modernized; but that more critical data pertaining to the behavior of the monoglyceride than that then available, would be required, before any amending action could be considered.

"The Milk Sanitation Division suggested that an experimental program be planned in which the behavior of the monoglyceride cleaning system could be calibrated against that of existing dairy practice, at the farms of shippers to an "approved" receiving station. Since shippers whose records showed consistent satisfactory performance had, by this, demonstrated their ability to handle present approved materials and methods, and since it was well known that the characteristics of different alkaline agents were not always equivalent to each other, there was no point to utilizing such shippers in the trials. The officials requested that shippers whose histories indicated frequent poor performance on original tests be chosen."

Thirteen "troubled" farms were selected for the study. Samples of night and morning milk were taken daily and tested for total and thermoduric agar plate levels and agar plate levels. The division of the shippers into groups for control purposes is described in detail on page 44 of the September issue of the American Milk Review. On the following pages are presented the detailed records of the thirteen shippers involved.

THE HUMAN FACTOR

The careful study into cleaning practices at the farm carried out by Dr. Levowitz is the first time that such a factual piece of research into this branch of the dairy industry has been. The abstract of Dr. Levowitz report published in the September issue of the "American Milk Review" gives a good picture of the techniques and the results the study. However, it is an abstract. It is only by rereading the report, studying the comments and statistics that are presented on the following pages that one grasps the full scope, and meticulous detail of the work.

As one reads the report one becomes increasingly aware of the fact that it is more than a study in the cleaning of milk machines, It is an illuminating demonstration of the social factors in milk production. The comments with which Dr. Levowitz cryptically fills in the background on the thirteen shippers shows clearly how great is the influence of the human factor. Under the heading, "washing personnel, one farm has "very old hired man, three sons, and owner. Hired man weak, slow to understand but cooperative; sons indifferent. Other chores frequently delay time of washing—usually done by hired man." In the case of another shipper, "Mother (owner) washes equipment after morning milking; son after night milking. Mother has difficulty speaking and understanding English."

Although the pages of statistics that follow may appear somewhat forbidding at first glance, the story that they have to tell is worthy of careful attention.

SHIPPER NUMBER ONE

A. Farm Statistics:

Milking herd—49 grade Holsteins; daily milk production 1100 to 1300 lbs. Milking machines—Surge, 3 units; metal—good; rubber—fairly new.

Water heater—Sanimatic, 20-gallon capacity, good order.

Tubs—permanent, piped to cold water.

Cooler—Esco, 10-can capacity, good condition; circulator connecter through time switch, good working order.

Strainer—Atlantic, good condition. Pails—good condition.

Air line to compressor—adequate pitch.

Washing Personnel 9/1-9/20—Owner's wife and hired man; (owner had also washed equipment, but was then in hospital); though not receptive at beginning of first visit, both wife and hired man interested immediately and cooperative.

B. Previous Washing Methods (Statement)

After a.m. milking. All equipment cold-water-rinsed; milk lines removed from covers; everything put into tub and brushed with "hot" alkaline solution; (no regular brand—any obtainable from receiving plant or elsewhere); parts rinsed with cold water, then "hot", drained, and racked. Units taken apart completely once weekly for thorough cleaning.

After p.m. milking. "Same as after a.m.", but indication that sometimes cleaning was modified to omit removal of milk tubes.

C. Monoglyceride Cleaning 9/1-9/20. Fieldman acid-monoglyceride soaked and scrubbed on 8/14 and 8/28.

After a.m. milking. Equipment drained; inflations removed from covers all parts immersed in tubful of warm monoglyceride solution. Parts brushed, transferred to tub and rinsed with cold water, then warm water (120°F.-140°F. by investigator's thermometer); drained; racked. Reassembled and rinsed with warm water just before re-use. Complete disassembly, inflations taken out of cups, once weekly, unless air line fouled. No further acid scrubbing.

After p.m. milking. Same as after a.m.

D. Cleaning after 9/20 (Statement)

Same as during supervision period, both a.m. and p.m., except that warm water rinses following cleaning and before re-use have been omitted. Monoglyceride exhausted 10/27; alkali powder in milkhouse used in same way as wetting agent, until 11/1, when more monoglyceride obtained.

E. Standardization Observations:

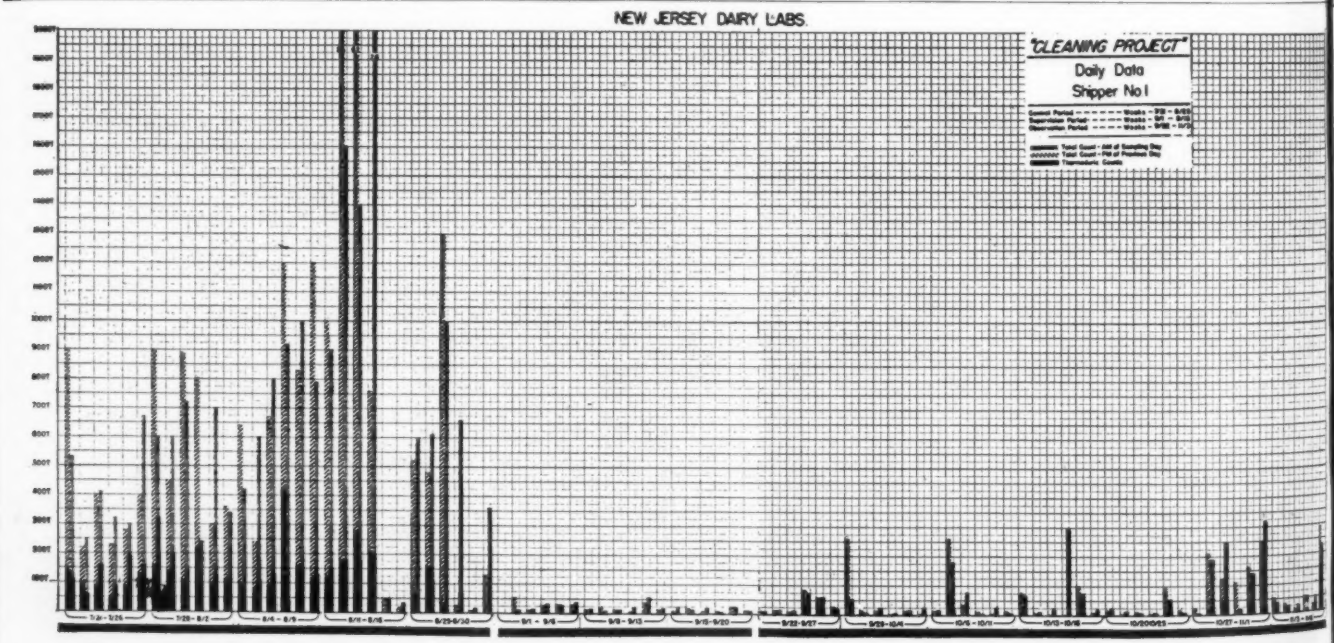
Udder hair not clipped. Udder wiping, foremilk removal and can rocking begun 9/4, continued to 9/20; sporadic afterwards. (Wiping with one cloth for herd, when done.) Circulation continuous after first can immersion to end of one cycle after milkhouse chores 9/3-9/20; rapid cooling.

DAILY DATA, GROUP 1 — SHIPPER 1

CONTROL		—NIGHT MILK— Total Count	Thermo-durics	—MORNING MILK— Total Count	Thermo-durics
July	21	900,000	140,000	530,000	110,000
	22	220,000	100,000	250,000	60,000
	23	400,000	91,000	410,000	160,000
	24	230,000	45,000	320,000	90,000
	25	280,000	88,000	300,000	190,000
	26	400,000	130,000	670,000	160,000
	28	900,000	160,000	600,000	320,000
	29	450,000	140,000	600,000	200,000
	30	890,000	110,000	720,000	140,000
	31	800,000	220,000	240,000	99,000
Aug.	1	300,000	95,000	700,000	120,000
	2	360,000	110,000	340,000	110,000
	4	640,000	96,000	420,000	44,000
	5	240,000	80,000	600,000	110,000
	6	670,000	93,000	800,000	130,000
	7	1,200,000	420,000	920,000	40,000
	8	830,000	160,000	1,000,000	140,000
	9	1,200,000	120,000	790,000	130,000
	11	1,000,000	120,000	900,000	150,000
	12	2,300,000	180,000	1,600,000	170,000
	13	6,200,000	280,000	1,400,000	180,000
	14	760,000	210,000	2,600,000	200,000
	15	50,000	500	47,000	400
	16	18,000	200	33,000	300
	25	520,000	65,000	600,000	40,000
	26	480,000	160,000	610,000	110,000
	27	1,300,000	34,000	1,000,000	13,000
	28	26,000	1,000	660,000	68,000
	29	9,000	300	17,000	700
	30	130,000	6,700	360,000	11,000
SUPERVISION					
Sept.	1	.....	.....	.....	.....
	2	54,000	100	11,000	200
	3	10,000	400	14,000	200
	4	27,000	800	32,000	1,300
	5	31,000	100	28,000	500
	6	29,000	7,200	38,000	1,000
	8	13,000	400	16,000	200
	9	21,000	100	9,000	500
	10	13,000	400	12,000	100
	11	7,000	500	21,000	200
	12	38,000	1,800	56,000	1,200
	13	14,000	200	20,000	100
	15	10,000	1,000	22,000	200
	16	19,000	100	14,000	200
	17	9,000	300	20,000	200
	18	9,000	400	6,000	1,400
	19	24,000	300	23,000	1,700
	20	12,000	700	11,000	100

DAILY DATA, GROUP 1 — SHIPPER 1

OBSERVATION		—NIGHT MILK— Total Count	Thermo-durics	—MORNING MILK— Total Count	Thermo-durics
Sept.	22	10,000	400	11,000	300
	23	13,000	200	14,000	100
	24	10,000	200	13,000	300
	25	85,000	17,000	75,000	6,100
	26	59,000	14,000	60,000	1,800
	27	27,000	800	21,000	1,700
	29	260,000	3,800	52,000	2,000
	30	8,000	2,600	7,000	200
Oct.	1	14,000	100	23,000	2,700
	2	3,000	100	6,000	300
	3	14,000	100	16,000	100
	4	3,000	100	25,000	100
	6	13,000	100	17,000	100
	7	260,000	78,000	180,000	24,000
	8	35,000	1,800	76,000	600
	9	12,000	200	4,000	1,700
	10	5,000	100	23,000	200
	11	12,000	300	7,000	1,400
	13	73,000	10,000	67,000	3,100
	14	6,000	100	11,000	100
	15	2,000	100	19,000	100
	16	2,000	100	300,000	400
	17	99,000	4,200	75,000	11,000
	18	9,000	300	19,000	100
	20	17,000	500	23,000	200
	21	5,000	600	14,000	500
	22	10,000	300	9,000	200
	23	3,000	100	8,000	400
	24	92,000	8,500	55,000	2,400
	25	11,000	1,100	9,000	200
	27	21,000	100	6,000	200
	28	210,000	19,000	190,000	15,000
	29	120,000	45,000	250,000	27,000
	30	110,000	700	19,000	100
	31	160,000	37,000	140,000	24,000
Nov.	1	250,000	19,000	320,000	25,000
	3	52,000	100	36,000	100
	4	32,000	400	23,000	100
	5	12,000	400	26,000	200
	6	55,000	400	52,000	200
	7	22,000	100	52,000	100
	8	290,000	140,000	230,000	68,000



SHIPPER NUMBER TWO

A. Farm Statistics:

Milking herd—40 grade Holsteins; daily milk production 800 to 1200 lbs.

Milking machines—Surge, 3 units; metal good; rubber—2 sets fair, 1 set old, 1/30; old set replaced with new 9/4.

Water heater—Surge, 50-gallon capacity; fair condition.

Tubs—galvanized, portable washtubs. Cold water in milkhouse.

Cooler—Wilson, 12-can capacity, fair condition; short circuit in circulator time switch; other connection suggested 9/2 and promised, but not rewired by 11/6.

Strainer—Dome, fair condition. Pails—fair condition.

Air line to compressor—adequate pitch.

Washing Personnel 9/1-9/20—Very old hired man, three sons and (statement) owner. Hired man weak, slow to understand, but cooperative; sons indifferent. Other chores frequently delay time of washing—usually done by hired man.

B. Previous Washing Methods (Statement)

After a.m. milking. All equipment cold-water-rinsed; milk lines removed from covers. All then immersed in tub, washed and brushed with "hot" solution of B-K or Chloro-D. Cold water rinsed, drained and racked.

After p.m. milking. Variable; cold-water-rinse sporadic. B-K or Chloro-D solution (cold to "hot") sucked through units; followed by cold water; drained, racked. Other than milking machines regularly just cold-water-rinsed.

C. Monoglyceride Cleaning 9/1-9/20. Fieldman acid-monoglyceride soaked and scrubbed 8/23, and visited daily for next few days.

After a.m. milking. Milk lines removed from covers; all milking machine parts cold-water-rinsed, then brushed in tub with warm monoglyceride solution (110°F. by thermometer at start). Rinsed with cold water, drained, racked. Variable on other equipment; sometimes just rinsed, sometimes brushed with monoglyceride solution, then water-rinsed.

After p.m. milking. Warm monoglyceride solution sucked through inflations of milking machines, then cold-water-rinsed and racked. No disassembly. Other equipment, rinsed with wetting agent solution and cold water, or cold water alone; drained and racked.

(Note: Did not acid-monoglyceride soak and scrub until 9/13, when units were disassembled completely.)

D. Cleaning after 9/20 Statement)

Procedures of monoglyceride period still used, but with any detergent available; out of monoglyceride shortly after trial period. (Acid scrub recommended to hired man on 11/6—see data.)

E. Standardization Observations.

Udder hair not clipped; udder wiping and foremilking claimed after 9/1, but sporadic; not on days when investigator present during milking. No can rocking, except when investigator reminded. No circulation; slow cooling.

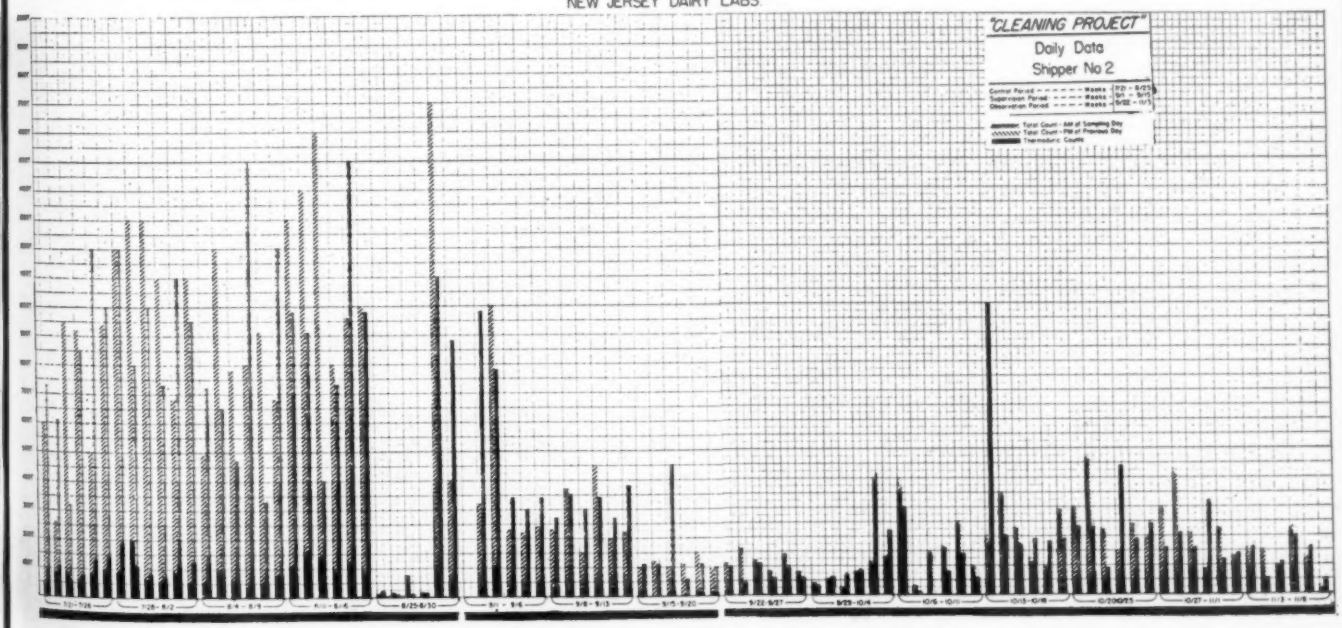
DAILY DATA, GROUP 1 — SHIPPER 2

		—NIGHT MILK—		—MORNING MILK—	
CONTROL		Total Count	Thermo-durics	Total Count	Thermo-durics
July	21	600,000	44,000	730,000	95,000
	22	260,000	86,000	610,000	110,000
	23	950,000	85,000	320,000	58,000
	24	920,000	61,000	890,000	77,000
	25	500,000	83,000	1,200,000	130,000
	26	940,000	100,000	1,000,000	140,000
	28	1,200,000	90,000	1,200,000	190,000
	29	1,300,000	200,000	800,000	110,000
	30	1,300,000	63,000	1,000,000	82,000
	31	1,100,000	56,000	730,000	70,000
Aug.	1	680,000	88,000	1,300,000	110,000
	2	1,100,000	55,000	950,000	120,000
	4	490,000	53,000	720,000	120,000
	5	1,200,000	92,000	650,000	68,000
	6	780,000	56,000	470,000	48,000
	7	800,000	31,000	1,500,000	83,000
	8	910,000	41,000	330,000	44,000
	9	680,000	77,000	1,200,000	84,000
	11	1,300,000	110,000	980,000	80,000
	12	1,400,000	160,000	910,000	110,000
	13	1,600,000	140,000	400,000	35,000
	14	800,000	88,000	730,000	120,000
	15	960,000	120,000	1,500,000	180,000
	16	1,000,000	82,000	980,000	85,000
	25	11,000	100	20,000	700
	26	15,000	400	8,000	100
	27	74,000	100	10,000	200
	28	16,000	100	14,000	500
	29	1,700,000	95,000	1,100,000	53,000
	30	400,000	22,000	880,000	41,000
SUPERVISION					
Sept.	1				
	2	320,000	20,000	980,000	28,000
	3	1,000,000	110,000	780,000	39,000
	4	230,000	11,000	240,000	9,300
	5	220,000	7,500	300,000	11,000
	6	240,000	12,000	340,000	10,000
	8	230,000	6,900	270,000	12,000
	9	370,000	18,000	350,000	15,000
	10	150,000	7,500	300,000	14,000
	11	450,000	18,000	340,000	16,000
	12	200,000	12,000	270,000	23,000
	13	220,000	3,700	380,000	7,300
	15	97,000	16,000	110,000	10,000
	16	120,000	1,400	110,000	6,200
	17	97,000	6,700	450,000	15,000
	18	110,000	1,700	57,000	900
	19	150,000	13,000	110,000	9,200
	20	94,000	12,000	98,000	111,000

DAILY DATA, GROUP 1 — SHIPPER 2

		—NIGHT MILK—		—MORNING MILK—	
OBSERVATION		Total Count	Thermo-durics	Total Count	Thermo-durics
Sept.	22	110,000	14,000	100,000	17,000
	23	160,000	16,000	83,000	8,900
	24	120,000	26,000	110,000	13,000
	25	82,000	14,000	57,000	12,000
	26	140,000	9,200	94,000	19,000
	27	80,000	12,000	59,000	9,800
	29	40,000	12,000	31,000	14,000
	30	54,000	35,000	61,000	23,000
Oct.	1	20,000	10,000	68,000	16,000
	2	77,000	16,000	84,000	13,000
	3	110,000	22,000	400,000	65,000
	4	130,000	24,000	220,000	3,000
	6	350,000	47,000	200,000	40,000
	7	27,000	1,600	7,000	100
	8	140,000	3,400		
	9	160,000	25,000	80,000	11,000
	10	240,000	2,600	140,000	5,900
	11	93,000	10,000	57,000	12,000
	13	170,000	17,000	1,000,000	8,200
	14	330,000	1,600	200,000	900
	15	220,000	48,000	170,000	19,000
	16	110,000	13,000	190,000	16,000
	17	94,000	3,600	180,000	9,200
	18	290,000	19,000	190,000	11,000
	20	300,000	33,000	230,000	16,000
	21	460,000	55,000	230,000	73,000
	22	220,000	45,000	90,000	13,000
	23	150,000	14,000	440,000	31,000
	24	240,000	15,000	190,000	8,100
	25	190,000	13,000	240,000	15,000
	27	290,000	9,900	160,000	16,000
	28	410,000	9,000	210,000	10,000
	29	210,000	18,000	160,000	8,100
	30	86,000	7,800	320,000	1,800
	31	220,000	26,000	120,000	14,000
Nov.	1	130,000	15,000	140,000	8,500
	3	140,000	9,700	160,000	12,000
	4	150,000	7,200	53,000	9,300
	5	94,000	12,000	110,000	17,000
	6	210,000	20,000	200,000	21,000
	7	120,000	8,700	160,000	17,000
	8	16,000	5,900	49,000	14,000

NEW JERSEY DAIRY LABS.



SHIPPER NUMBER THREE

A. Farm Statistics:

Milking herd—32 grade Holsteins; daily milk production 400-450 lbs.
Milking machines—Surge, 3 units; metal—good; rubber—fairly new.
Water heater—Surge, 30-gallon capacity, good order.
Tubs—permanent, piped to hot and cold water.
Cooler—Esco; 10-can capacity; good condition; circulator connected through time switch—good operating condition.
Strainer—Atlantic, good condition; pails—good condition.
Air line to compressor—adequate pitch.
Washing Personnel 9/1-9/20—Two brothers, owners; both intelligent and energetic; started on monoglyceride cleaning system before request.

B. Previous Washing Methods (Statement)

After a.m. milking. Rinsed all with cold water; removed milk lines from covers; washed and brushed with "hot" water, but used no detergent. Rinsed with warm or "hot" water; drained; racked. Units taken apart completely once weekly, chlorine compound then put into "hot" wash water and brushed.
After p.m. milking. Same as a.m.

C. Monoglyceride Cleaning 9/1-9/20

After a.m. milking. Cold-water-rinsed, then machines completely disassembled and put into tub of warm monoglyceride solution. All brushed thoroughly, rinsed with warm water, drained, racked. Before milking, assembled, rinsed with warm water. Acid-monoglyceride soak and scrub once weekly.
After p.m. milking. Same as a.m.

D. Cleaning after 9/20 (Statement)

One of brothers seriously ill since beginning of October. Made it difficult for other to carry on all work. Use monoglyceride system until out of monoglyceride—third week of October. Had gone back to original method. Knew equipment was in poor shape and planned acid-monoglyceride soak and scrub and getting back to monoglyceride system at earliest opportunity.

E. Standardization Observations:

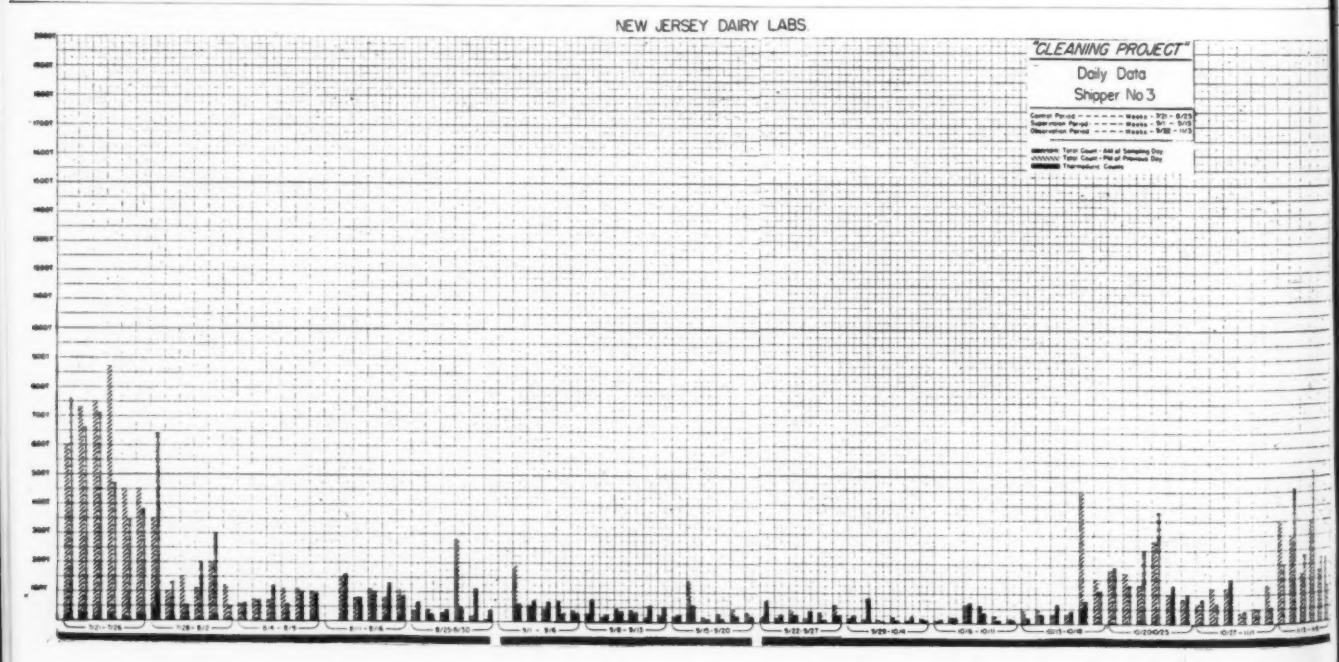
Udder hair not clipped; udders washed 9/3-9/5 with single cloth, thereafter with more cloths, until brother's illness. Strip cup used all through period. Cans rocked all through period. Circulation continuous after first can immersion for one cycle after milkhouse chores. Rapid cooling.

DAILY DATA, GROUP 1 — SHIPPER 3

		—NIGHT MILK—		—MORNING MILK—	
CONTROL		Total Count	Thermo-durics	Total Count	Thermo-durics
July	21	600,000	16,000	760,000	8,400
	22	730,000	27,000	660,000	6,300
	23	750,000	11,000	710,000	5,400
	24	870,000	23,000	470,000	9,000
	25	450,000	14,000	320,000	9,900
	26	450,000	23,000	280,000	16,000
	28	350,000	37,000	640,000	100,000
	29	100,000	8,400	130,000	16,000
	30	150,000	6,000	52,000	11,000
	31	110,000	6,300	200,000	11,000
Aug.	1	200,000	11,000	300,000	17,000
	2	120,000	6,500	49,000	6,400
	4	57,000	3,800	60,000	1,400
	5	71,000	1,800	69,000	2,600
	6	70,000	2,100	120,000	2,100
	7	110,000	3,900	56,000	700
	8	110,000	2,600	100,000	2,200
	9	100,000	1,900	92,000	1,400
	11	.....	.....	.....	.....
	12	150,000	4,300	160,000	3,600
	13	78,000	2,000	79,000	1,200
	14	110,000	1,700	100,000	2,100
	15	80,000	14,000	130,000	3,500
	16	110,000	14,000	86,000	4,000
	25	37,000	2,000	63,000	1,200
	26	39,000	400	20,000	1,600
	27	29,000	700	37,000	400
	28	280,000	2,300	46,000	800
	29	17,000	3,200	110,000	4,000
	30	6,000	1,200	37,000	1,100
SUPERVISION		.....	.....	.....	.....
Sept.	1	.....	.....	.....	.....
	2	200,000	10,000	60,000	900
	3	53,000	4,200	69,000	2,300
	4	42,000	4,800	66,000	5,000
	5	69,000	1,800	25,000	2,000
	6	36,000	5,700	25,000	3,700
	8	27,000	1,400	69,000	14,000
	9	15,000	200	22,000	300
	10	43,000	14,000	34,000	7,600
	11	38,000	300	28,000	200
	12	15,000	2,900	54,000	8,500
	13	20,000	700	51,000	600
	15	18,000	1,700	22,000	200
	16	140,000	2,100	55,000	3,100
	17	16,000	700	9,000	300
	18	27,000	4,600	11,000	200
	19	45,000	9,500	19,000	2,100
	20	32,000	800	19,000	1,000

DAILY DATA, GROUP 1 — SHIPPER 3

		—NIGHT MILK—		—MORNING MILK—	
OBSERVATION		Total Count	Thermo-durics	Total Count	Thermo-durics
Sept.	22	18,000	1,000	70,000	34,000
	23	15,000	300	25,000	4,000
	24	42,000	2,700	25,000	1,700
	25	15,000	1,400	39,000	1,000
	26	34,000	800	9,000	1,000
	27	59,000	8,400	24,000	700
	29	14,000	1,600	25,000	2,900
	30	11,000	1,000	81,000	2,300
Oct.	1	9,000	800	4,000	200
	2	18,000	300	7,000	100
	3	6,000	700	20,000	1,700
	4	14,000	100	9,000	700
	6	7,000	500	12,000	500
	7	19,000	3,400	17,000	200
	8	60,000	2,200	68,000	800
	9	59,000	8,900	34,000	300
	10	23,000	400	11,000	400
	11	18,000	1,600	12,000	1,700
	13	43,000	2,800	18,000	400
	14	46,000	700	30,000	900
	15	31,000	100	65,000	500
	16	31,000	600	42,000	400
	17	450,000	22,000	74,000	500
	18	150,000	1,100	110,000	600
	20	180,000	2,800	190,000	900
	21	170,000	1,800	130,000	1,600
	22	130,000	8,100	250,000	7,000
	23	280,000	8,400	380,000	700
	24	97,000	2,000	130,000	1,100
	25	83,000	1,000	98,000	8,100
	27	69,000	700	85,000	300
	28	120,000	300	69,000	1,100
	29	120,000	1,400	150,000	100
	30	37,000	600	42,000	1,500
	31	51,000	1,200	49,000	300
Nov.	1	130,000	1,600	55,000	100
	3	350,000	200	200,000	200
	4	300,000	900	460,000	600
	5	170,000	300	230,000	200
	6	350,000	2,200	520,000	200
	7	180,000	1,900	220,000	2,000
	8	220,000	1,800	120,000	2,200



SHIPPER NUMBER FOUR

A. Farm Statistics:

Milking herd—30 grade Holsteins; daily milk production 950-1050 lbs.
Milking machine—Surge, 2 units; metal—good; rubber—fairly new.
No water heater. Cold water in milkhouse.
Tub—galvanized, portable washtub.
Cooler—Surge; 6-can capacity, good condition. Circulator connected through time switch—good operating condition.
Strainer—Atlantic, good condition; pails—good condition.
Air line to compressor—adequate pitch.

Washing Personnel 9/1-9/20—Two brothers and the wife of one. Older brother usually washed equipment in milkhouse following p.m. milking; his wife washed equipment in kitchen, following a.m. milking. Younger brother washed when others were busy. Intelligent, cooperative.

B. Previous Washing Methods (Statement)

After a.m. milking. Equipment cold-water-rinsed; carried in tub to kitchen; milking tubes removed from covers; all scrubbed with hot alkali solution (any brand supplied by receiving station); rinsed with warm water, drained and racked. Complete disassembly every two or three weeks; also chlorinated at that time. Equipment rinsed with "hot" water before re-use.

After p.m. milking. Equipment given same treatment as after a.m., except "hot" water for alkali solution brought to milkhouse, and rinse after scrub with cold water.

C. MONOGLYCERIDE Cleaning 9/1-9/20. Fieldman acid-monoglyceride soaked and scrubbed 8/14.

After a.m. milking. Equipment drained, brought to kitchen; milking tubes removed from covers; immersed in hot monoglyceride solution, scrubbed, rinsed with warm water, drained, racked. Equipment rinsed with warm water before re-use. Units completely taken down once weekly; no further acid-monoglyceride scrub.

After p.m. milking. Same as a.m., except hot water brought for monoglyceride solution to milkhouse. Rinse after scrub with cold water. Rinse with hot water before re-use.

D. Cleaning after 9/20 (Statement)

Older brother working elsewhere, younger brother does milkhouse washing regularly, following same procedure as in trial. (Reported wedding on September 16, and incomplete attention to farm chores.)

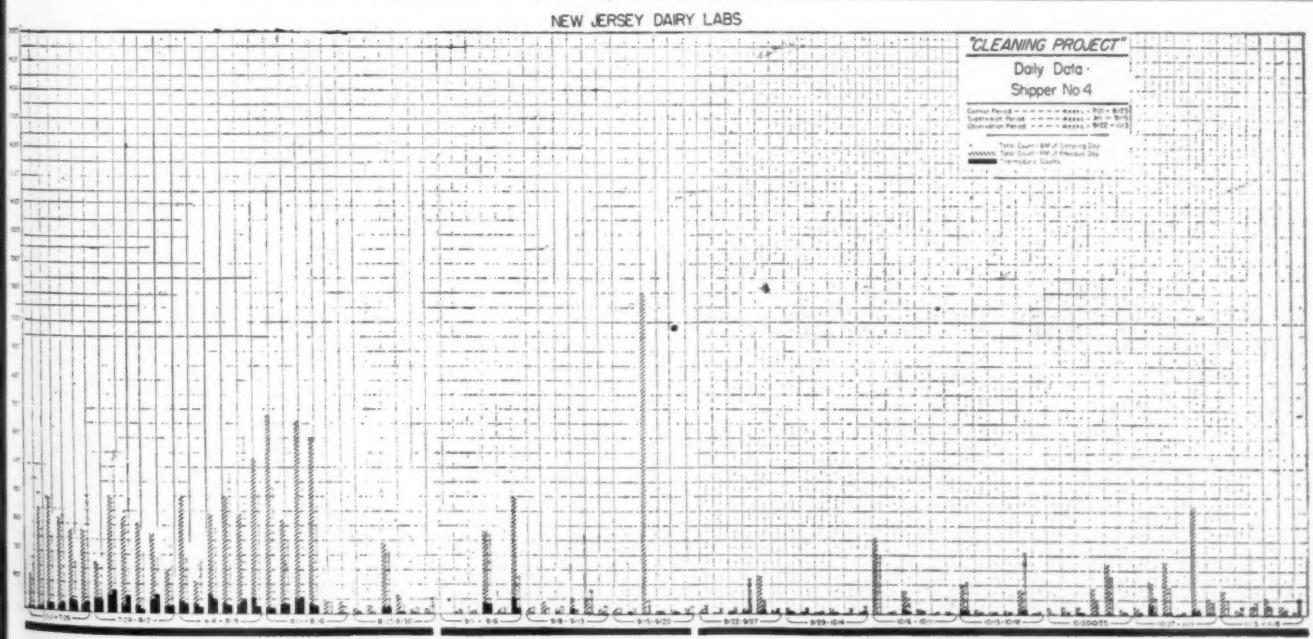
E. Standardization Observations: Udder hair not clipped; udders washed 9/3 and thereafter with one cloth; foremilked, but no strip cup until 9/11; used thereafter. Cans rocked 9/3-9/20. Circulation continuous after first can immersion for one cycle after milkhouse chores. Rapid cooling.

DAILY DATA, GROUP 1 — SHIPPER 4

		—NIGHT MILK—		—MORNING MILK—	
CONTROL		Total Count	Thermo-durics	Total Count	Thermo-durics
July	21	120,000	8,100	180,000	7,600
	22	350,000	6,000	280,000	13,000
	23	390,000	24,000	260,000	24,000
	24	320,000	17,000	330,000	30,000
	25	280,000	42,000	170,000	37,000
	26	280,000	24,000	400,000	35,000
	28	170,000	47,000	160,000	44,000
	29	400,000	63,000	560,000	77,000
	30	330,000	28,000	390,000	60,000
	31	310,000	27,000	210,000	12,000
Aug.	1	270,000	46,000	190,000	65,000
	2	150,000	23,000	230,000	25,000
	4	400,000	41,000	190,000	33,000
	5	110,000	32,000	180,000	22,000
	6	340,000	65,000	290,000	46,000
	7	400,000	35,000	480,000	27,000
	8	340,000	32,000	610,000	48,000
	9	530,000	54,000	420,000	23,000
	11	680,000	20,000	430,000	18,000
	12	320,000	33,000	300,000	32,000
	13	660,000	47,000	460,000	55,000
	14	600,000	33,000	370,000	25,000
	15	44,000	700	39,000	100
	16	41,000	400	23,000	700
	25	17,000	100	10,000	800
	26	26,000	800	8,000	300
	27	240,000	21,000	210,000	22,600
	28	61,000	3,700	32,000	5,000
	29	12,000	3,300	20,000	700
	30	16,000	200	54,000	800
SUPERVISION					
Sept.	1				
	2	7,000	100	14,000	400
	3	8,000	300	11,000	200
	4	280,000	36,000	270,000	33,000
	5	14,000	300	20,000	1,000
	6	400,000	54,000	130,000	18,000
	8	19,000	700	22,000	1,400
	9	41,000	100	19,000	100
	10	15,000	5,300	23,000	100
	11	55,000	17,000	14,000	100
	12	55,000	2,600	81,000	3,200
	13	15,000	800	27,000	1,500
	15	18,000	1,300	20,000	200
	16	7,000	4,700	19,000	100
	17	1,100,000	600	45,000	1,100
	18	8,000	100	10,000	200
	19	12,000	200	6,000	700
	20	16,000	1,800	24,000	300

DAILY DATA, GROUP 1 — SHIPPER 4

		—NIGHT MILK—		—MORNING MILK—	
OBSERVATION		Total Count	Thermo-durics	Total Count	Thermo-durics
Sept.	22	14,000	2,000	27,000	100
	23	2,000	200	17,000	600
	24	8,000	500	20,000	900
	25	18,000	7,200	120,000	4,100
	26	130,000	3,900	46,000	10,000
	27	10,000	500	17,000	200
	29	18,000	900	8,000	2,600
	30	6,000	500	18,000	500
Oct.	1	4,000	100	10,000	300
	2	18,000	1,500	5,000	1,100
	3	1,000	100	18,000	100
	4	5,000	100	25,000	9,900
	6	260,000	1,000	200,000	100
	7	7,000	100	11,000	1,200
	8	77,000	15,000	57,000	9,200
	9	15,000	100	11,000	100
	10	1,000	100	6,000	100
	11	8,000	400	2,000	100
	13	100,000	13,000	110,000	13,000
	14	15,000	100	10,000	600
	15	7,000	300	8,000	200
	16	12,000	100	8,000	500
	17	81,000	12,000	210,000	15,000
	18	4,000	400	9,000	800
	20	21,000	300	2,000	800
	21	24,000	900	9,000	1,000
	22	24,000	6,300	7,000	4,400
	23	90,000	100	50,000	100
	24	170,000	4,200	130,000	3,700
	25	17,000	400	800	700
	27	23,000	200	9,000	200
	28	110,000	31,000	56,000	5,100
	29	180,000	6,300	95,000	7,900
	30	4,000	100	8,000	400
	31	370,000	16,000	22,000	12,000
Nov.	1	55,000	7,000	44,000	5,500
	3	81,000	200	51,000	100
	4	14,000	100	28,000	500
	5	30,000	1,500	42,000	100
	6	56,000	400	29,000	100
	7	29,000	100	20,000	100
	8	10,000	100	56,00	100



SHIPPER NUMBER FIVE

A. Farm Statistics:

Milking herd—16 grade Holsteins; daily milk production 230-280 lbs. Milking machine—International, 2 units; metal—poor condition; rubber—fairly new. Units replaced with new ones 10/1.

No water heater.

Tub—permanent, piped to cold water.

Cooler—International; 8 can capacity, good condition. Circulator connected through time switch, good operating condition.

Strainer—Atlantic, good condition; pails—fair condition.

Air line to compressor—adequate pitch.

Washing Personnel 9/1-9/20—Owner, alone. Intelligent; knows how to answer; from observation, not deeply interested.

B. Previous Washing Methods (Statement)

After a.m. milking. Equipment cold-water-rinsed. Every other day completely disassembled; all parts then scrubbed with "hot" Lo-Bax solution. Rinsed with cold water, drained and racked; in summer tubes kept filled with 0.5% lye solution. On alternate days "hot" Lo-Bax sucked through milk lines, rinsed with water, drained, and racked.

After p.m. milking. Same as alternate of a.m. (No disassembly.)

C. Monoglyceride Cleaning 9/1-9/20 Fieldman acid-monoglyceride soaked and scrubbed 8/11, 8/14, and 8/27.

After a.m. milking. Milk drained, warm monoglyceride solution sucked through with vacuum on, rinsed with cold water, drained and racked. Claimed to take machines apart every other morning, but condition of manifold fittings did not confirm this.

After p.m. milking. Same as alternate method of a.m. Difficult to observe cleaning of this farm; cleaning not performed at scheduled times.

D. Cleaning after 9/20 (Statement)

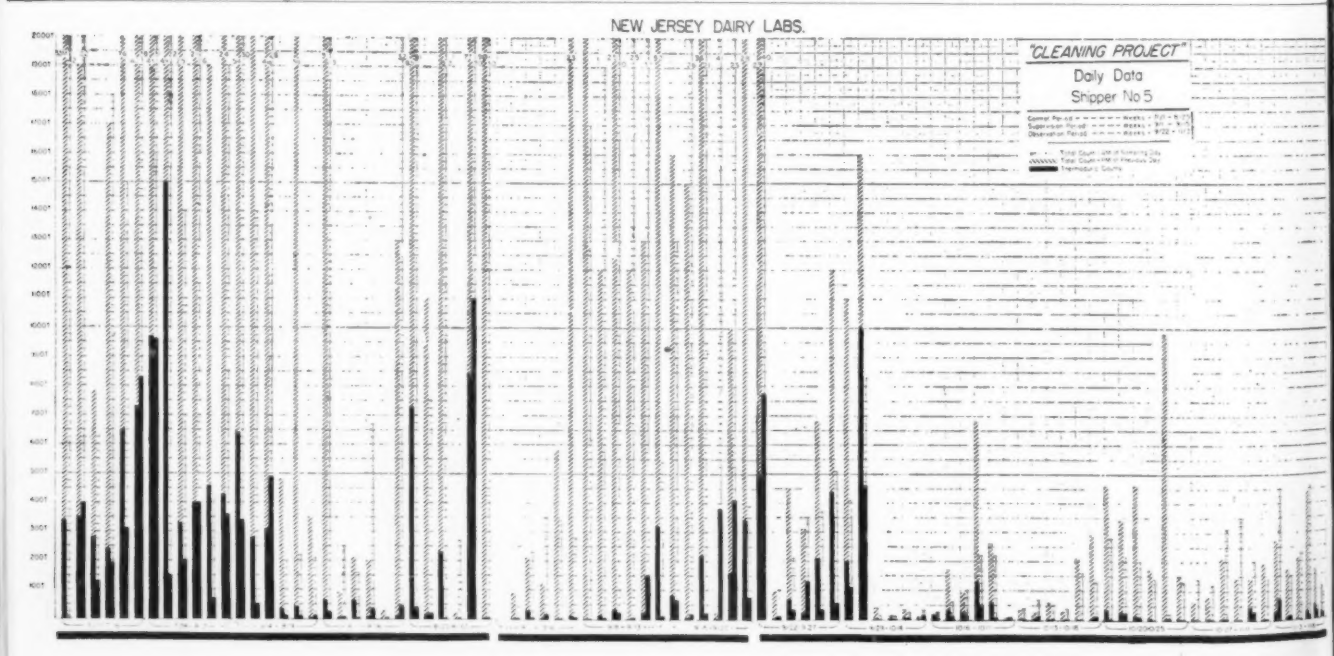
Same as during monoglyceride test interval. Acid-wetting agent scrub and soak reported to be made weekly.

E. Standardization Observations:

Udder hair not clipped; udder wiping with one cloth throughout; no fore-milking; rocking cans on observation; circulator on from time of first can immersion to end of cycle following milkhouse chores. Milk cooled rapidly.

GROUP 1 — SHIPPER 5

Date		—NIGHT MILK— Total Count	Thermo-durics	—MORNING MILK— Total Count	Thermo-durics
July	14	2,400,000	820,000	2,200,000	740,000
	15	320,000	130,000	500,000	95,000
	16	2,400,000	290,000	600,000	140,000
	17	.....	.....	1,500,000	160,000
	21	3,300,000	340,000	4,200,000	600
	22	1,900,000	350,000	2,200,000	400,000
	23	780,000	280,000	700,000	130,000
	24	1,700,000	240,000	1,800,000	190,000
	25	7,600,000	650,000	1,500,000	310,000
	26	4,200,000	730,000	3,800,000	826,000
	28	4,300,000	970,000	3,100,000	960,000
	29	4,900,000	1,500,000	2,200,000	150,000
	30	2,500,000	330,000	1,400,000	200,000
	31	2,100,000	400,000	2,600,000	400,000
Aug.	1	1,900,000	460,000	410,000	68,000
	2	2,400,000	430,000	1,900,000	360,000
	4	5,400,000	640,000	3,000,000	340,000
	5	2,000,000	280,000	1,400,000	48,000
	6	4,600,000	310,000	2,800,000	490,000
	7	480,000	33,000	200,000	10,000
	8	3,800,000	43,000	220,000	8,800
	9	350,000	2,700	210,000	11,000
	11	3,100,000	63,000	2,300,000	22,000
	12	90,000	5,800	250,000	6,300
	13	210,000	63,000	160,000	3,300
	14	200,000	8,100	670,000	35,000
	15	29,000	100	6,000	300
	16	1,300,000	13,000	3,200,000	45,000
	25	8,500,000	730,000	9,100,000	39,000
	26	1,100,000	16,000	760,000	19,000
	27	2,000,000	230,000	2,200,000	1,200
	28	19,000	200	270,000	1,000
	29	7,700,000	840,000	12,000,000	1,100,000
	30	9,000,000	4,700	3,000,000	1,400
Sept.	1	.....	.....	.....	.....
	2	86,000	2,600	44,000	2,400
	3	210,000	30,000	230,000	9,900
	4	120,000	2,300	350,000	17,000
	5	580,000	2,400	340,000	1,800
	6	2,300,000	12,000	280,000	6,200
	8	2,000,000	2,200	1,700,000	2,300
	9	1,200,000	14,000	1,900,000	4,300
	10	2,500,000	35,000	4,000,000	22,000
	11	1,200,000	2,100	2,500,000	6,800
	12	1,300,000	25,000	3,700,000	150,000
	13	5,200,000	320,000	540,000	12,000
	15	1,600,000	81,000	1,300,000	65,000
	16	1,500,000	5,500	2,600,000	19,000
	17	3,600,000	220,000	2,100,000	21,000
	18	23,000	3,400	4,100,000	380,000
	19	1,000,000	160,000	2,300,000	401,000
	20	2,800,000	340,000	390,000	76,000
	22	2,900,000	490,000	4,000,000	770,000
	23	92,000	5,000	100,000	12,000
	24	450,000	70,000	210,000	33,000
	25	310,000	25,000	350,000	130,000
	26	680,000	210,000	370,000	35,000
	27	1,200,000	440,000	510,000	56,000
	29	1,100,000	200,000	410,000	110,000
	30	1,600,000	1,000,000	830,000	460,000
Oct.	1	40,000	5,300	16,000	1,000
	2	14,000	3,800	13,000	4,400
	3	34,000	7,300	25,000	2,500
	4	11,000	2,600	33,000	13,000
	6	19,000	16,000	27,000	3,600
	7	170,000	35,000	61,000	11,000
	8	93,000	27,000	100,000	14,000
	9	680,000	130,000	220,000	45,000
	10	260,000	60,000	220,000	7,800
	11	7,000	2,600	10,000	5,700
	13	33,000	3,000	38,000	1,600
	14	25,000	5,200	70,000	13,000
	15	58,000	2,500	52,000	4,400
	16	28,000	1,900	38,000	5,100
	17	210,000	4,800	160,000	3,700
	18	290,000	7,600	130,000	15,000
	20	460,000	36,000	280,000	3,100
	21	340,000	29,000	220,000	26,000
	22	460,000	17,000	200,000	11,000
	23	170,000	8,800	140,000	1,700
	24	980,000	1,100	22,000	7,600
	25	150,000	7,200	130,000	4,100
	27	63,000	5,100	140,000	2,200
	28	82,000	5,100	120,000	2,900
	29	260,000	6,400	310,000	5,400
	30	140,000	4,000	350,000	4,100
	31	140,000	45,000	200,000	28,000
Nov.	1	190,000	1,700	140,000	4,400
	3	270,000	30,000	450,000	70,000
	4	170,000	10,000	150,000	15,000
	5	210,000	3,600	230,000	1,100
	6	440,000	30,000	460,000	14,000
	7	170,000	50,000	42,000	28,000
	8	110,000	23,000	86,000	19,000
	13	130,000	5,100	.....	.....



SHIPPER NUMBER SIX

A. Farm Statistics:

Milking herd—40 grade Holsteins, Guernseys and Jerseys; daily milk production 600-700 lbs.
Milking machines—Surge, 4 units; metal—good condition; rubber—fairly new.
Water heater—Hotpoint; 50-gallon capacity; good condition.
Tube—permanent, piped to hot and cold water.
Cooler—International, 10-can capacity, good condition; circulator wired through time switch—good operating condition.
Strainer—Atlantic, good condition. Pails in good condition.
Air lines to compressor—adequate pitch.
Washing Personnel—Before 8/22, by two hired men; one discharged by owner after plant fieldman's report. After 8/22, by owner and one hired man. Owner intelligent and conscientious; hired man good worker.

B. Previous Washing Methods (Statement)

After a.m. milking. All equipment cold-water-rinsed; milk tubes removed from covers; rubber scrubbed with hot alkaline solution (powders supplied by receiving station); steel wool used on metal. Cold-water-rinsed, drained, milk tubes re-attached, and racked.

After p.m. milking. Same as above, but milk tubes not re-attached until just before re-use. Then cold-water-rinsed.

C. Monoglyceride Cleaning 9/1-9/20 Fieldman acid-monoglyceride soaked and scrubbed 8/22.

After a.m. milking. All equipment drained, units completely disassembled, immersed in hot glyceride solution and scrubbed. (Used steel wool on metal until 9/5.) Cold-water-rinsed, drained, milk lines re-attached, racked. Hot-water-rinsed before re-use. (Hot water direct from heater—145°F.)

After p.m. milking. Same as above, but milk lines not re-attached. Hot-water-rinsed just before re-use.

D. Cleaning after 9/20 (Statement)

Same as monoglyceride test period. Short of wetting agent early October; obtained alkali powder from receiving station, employed it like monoglyceride and returned to wetting agent use when it became available. No explanation of random high counts reported, other than owner may have been away, and shortage of help resulted.

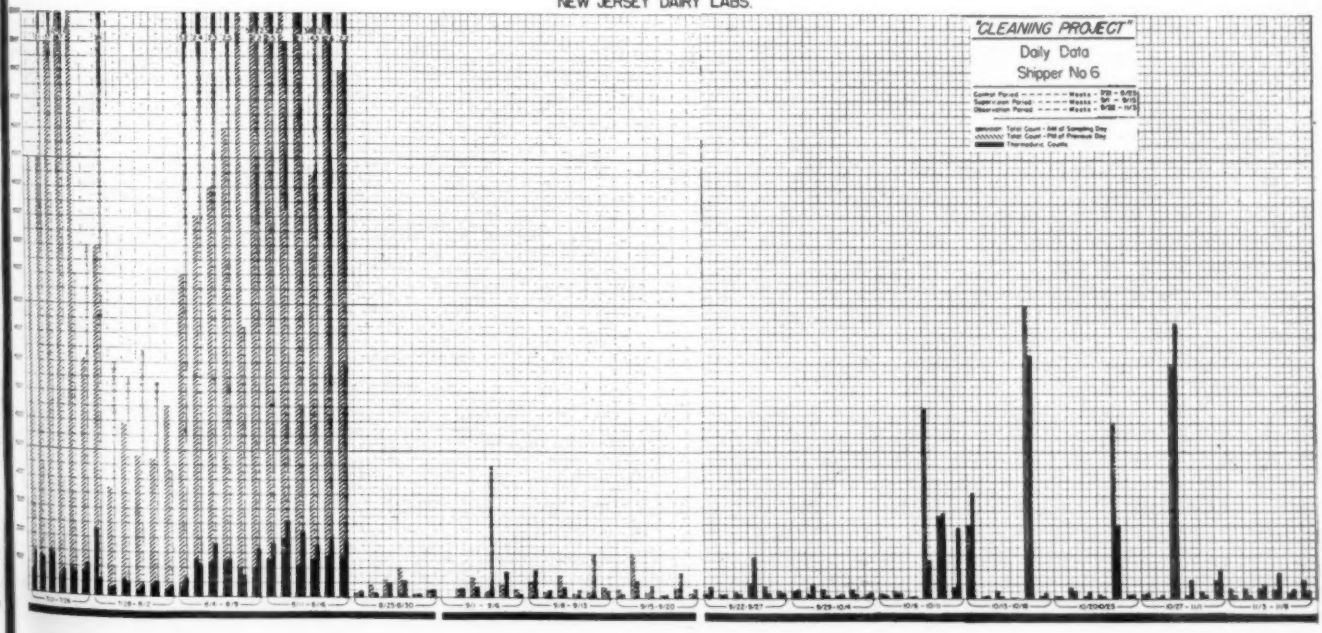
E. Standardization Observations:

Udders not clipped; one wiping cloth since before trial; foremilked; after 9/3 with strip cup; cans rocked; circulator on after first can immersion for one cycle past milkhouse chores. Fast cooling.

GROUP 1 — SHIPPER 6

Date		—NIGHT MILK— Total Count	Thermodurics	—MORNING MILK— Total Count	Thermodurics
July	17	.....	.....	2,600,000	73,000
	21	1,500,000	80,000	650,000	140,000
	22	1,500,000	130,000	2,100,000	120,000
	23	1,900,000	150,000	3,700,000	140,000
	24	2,400,000	69,000	6,700,000	85,000
	25	2,600,000	100,000	1,100,000	81,000
	26	810,000	86,000	1,200,000	110,000
	28	1,200,000	230,000	3,500,000	60,000
	29	370,000	30,000	800,000	31,000
	30	590,000	60,000	750,000	50,000
	31	480,000	22,000	840,000	40,000
Aug.	1	470,000	42,000	730,000	51,000
	2	650,000	26,000	430,000	40,000
	4	1,100,000	46,000	5,200,000	65,000
	5	1,300,000	130,000	2,400,000	110,000
	6	1,400,000	120,000	2,300,000	180,000
	7	1,600,000	120,000	2,500,000	130,000
	8	2,000,000	100,000	920,000	72,000
	9	5,800,000	100,000	2,200,000	160,000
	11	2,500,000	130,000	5,500,000	180,000
	12	2,700,000	200,000	1,900,000	260,000
	13	2,000,000	110,000	2,100,000	220,000
	14	3,800,000	130,000	4,300,000	170,000
	15	2,300,000	140,000	2,600,000	190,000
	16	1,800,000	140,000	2,200,000	190,000
Aug.	25	13,000	100	20,000	100
	26	41,000	900	14,000	500
	27	59,000	100	48,000	2,300
	28	100,000	11,000	57,000	2,100
	29	9,000	300	11,000	100
	30	22,000	900	51,000	200
Sept.	1	.....	.....	.....	.....
	2	30,000	1,000	31,000	2,900
	3	67,000	2,200	36,000	600
	4	20,000	4,000	450,000	27,000
	5	43,000	100	88,000	2,600
	6	27,000	1,000	11,000	300
	8	29,000	3,700	94,000	24,000
	9	18,000	400	25,000	200
	10	76,000	6,700	36,000	400
	11	13,000	200	26,000	600
	12	19,000	2,000	150,000	13,000
	13	36,000	400	24,000	900
	15	30,000	2,400	14,000	100
	16	100,000	600	59,000	2,400
	17	19,000	4,000	41,000	1,300
	18	10,000	1,100	11,000	300
	19	33,000	6,700	26,000	3,100
	20	15,000	1,400	31,000	3,700
	22	14,000	1,000	37,000	1,000
	23	11,000	3,000	12,000	2,600
	24	20,000	1,200	13,000	900
	25	50,000	24,000	140,000	23,000
	26	40,000	5,200	16,000	1,000
	27	24,000	900	17,000	600
	29	24,000	6,200	28,000	2,700
	30	13,000	1,500	44,000	10,000
Oct.	1	28,000	4,100	8,000	600
	2	6,000	3,200	15,000	100
	3	27,000	900	13,000	400
	4	9,000	1,200	19,000	100
	6	15,000	200	10,000	100
	7	19,000	3,100	18,000	400
	8	4,000	400	6,000	200
	9	650,000	17,000	130,000	15,000
	10	280,000	4,800	290,000	30,000
	11	37,000	20,000	240,000	42,000
	13	250,000	11,000	360,000	9,800
	14	6,000	200	9,000	600
	15	25,000	300	6,000	200
	16	3,000	200	2,000	200
	17	1,000,000	51,000	830,000	13,000
	18	7,000	100	19,000	300
	20	9,000	300	8,000	100
	21	36,000	200	25,000	100
	22	8,000	100	22,000	400
	23	12,000	400	6,000	100
	24	600,000	4,500	250,000	2,100
	25	12,000	100	14,000	1,100
	27	14,000	200	19,000	100
	28	3,000	600	12,000	800
	29	800,000	13,000	940,000	5,100
	30	11,000	100	63,000	100
	31	23,000	600	13,000	200
Nov.	1	63,000	500	100,000	300
	3	35,000	300	12,000	400
	4	34,000	100	11,000	600
	5	35,000	100	49,000	200
	6	31,000	300	88,000	200
	7	18,000	400	32,000	500
	8	63,000	100	26,000	100
	13	600,000	3,100	.....	.....

NEW JERSEY DAIRY LABS.



SHIPPER NUMBER SEVEN

A. Farm Statistics:

Milking herd—14 grade Holsteins and Guernseys; daily milk production 240-300 lbs.
Milking machine; Surge, 2 units; metal—good condition; rubber—fair condition.

Water heater—Surge; 10-gallon capacity; good condition.
Tubs—permanent, piped to hot and cold water.

Cooler—Montgomery Ward, 4-can capacity; no circulation.
Strainer—Atlantic, good condition. Pails in good condition.
Air line to compressor, adequate pitch.

Washing Personnel 9/1-9/20—Owner's wife; not cooperative; difficult to talk to; simulated inability to understand; unwilling to concede washing by other than original method; complained bonus not adequate.

B. Previous Washing Methods (Statement)

After a.m. milking. Equipment cold-water-rinsed; immersed in "hot" alkaline solution (powder obtained from receiving station). Milk tubes removed from covers every other day and scrubbed thoroughly; all then cold-water-rinsed, drained and racked. On alternate days, "hot" alkaline solution passed through tubes, and inflations only brushed. Then cold-water-rinsed, drained and racked.

After p.m. milking. All equipment cold-water-rinsed, drained and racked.

C. Monoglyceride Cleaning 9/1-9/20 Fieldman acid-monoglyceride soaked and scrubbed 8/14 and 8/28. Unable to get cooperative action until 9/4; acid-wetting agent treatment then given equipment. No rinsing or washing on Sunday, 9/7, for some reason.

After a.m. milking. 9/8-9/20—equipment drained; tubes removed from covers; immersed in hot monoglyceride (120°F.) solution; brushed; cold-water-rinsed; drained and racked.

After p.m. milking. After 9/8, equipment drained, covers removed from buckets, and all equipment rinsed with warm monoglyceride solution, equipment then cold-water-rinsed, drained and racked.

D. Cleaning after 9/20 (Statement)

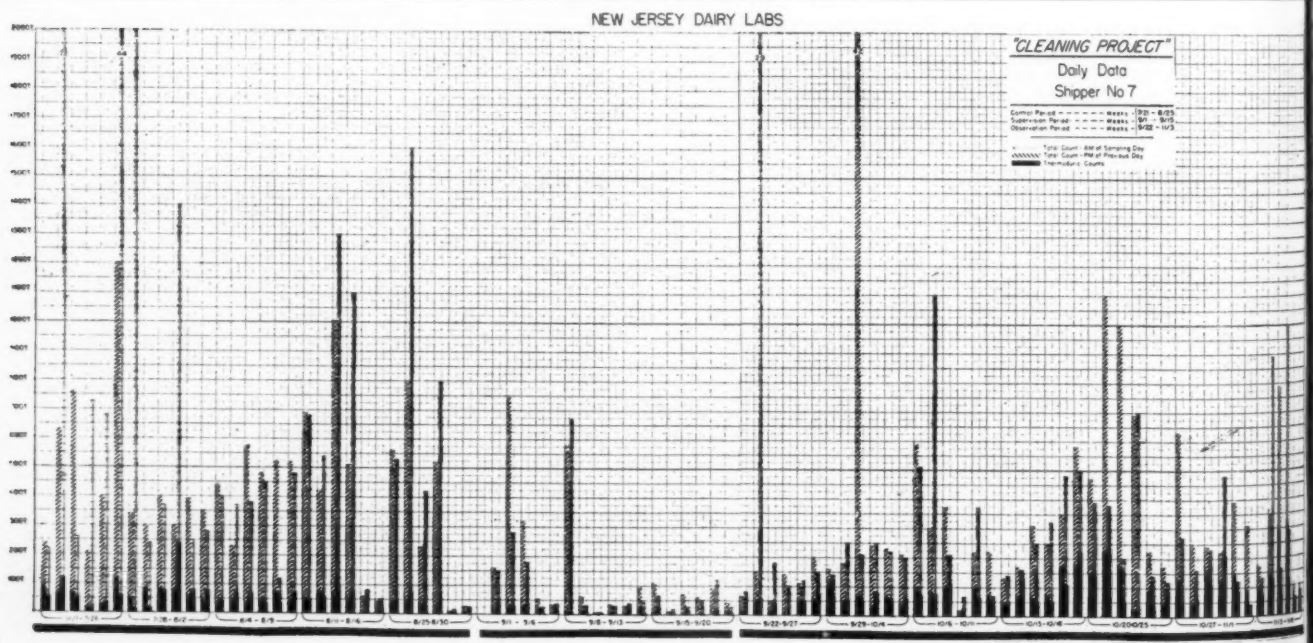
Returned to alkaline cleaner shortly after trial. Claimed method followed during monoglyceride use period still being practiced with other materials. Some monoglyceride left and acid soak and scrub suggested.

E. Standardization Observations:

Udder hair clipped 9/8; wiping cloth from 9/3; foremilking intermittent; no strip cup; rocking cans sporadic. No circulation. Cooling slow.

GROUP 1 — SHIPPER 7

Date		—NIGHT MILK— Total Count	Thermo-durics	—MORNING MILK— Total Count	Thermo-durics
July	17	.....	.....	350,000	27,000
	21	240,000	85,000	220,000	55,000
	22	630,000	65,000	7,200,000	120,000
	23	760,000	67,000	260,000	55,000
	24	210,000	19,000	730,000	16,000
	25	400,000	30,000	680,000	33,000
	26	1,200,000	120,000	4,400,000	60,000
	28	340,000	48,000	2,000,000	10,000
	29	300,000	86,000	240,000	16,000
	30	400,000	84,000	370,000	78,000
	31	300,000	80,000	1,400,000	240,000
Aug.	1	390,000	60,000	250,000	78,000
	2	350,000	40,000	280,000	77,000
	4	440,000	36,000	400,000	42,000
	5	230,000	40,000	370,000	70,000
	6	570,000	38,000	380,000	67,000
	7	480,000	48,000	450,000	32,000
	8	520,000	73,000	120,000	35,000
	9	320,000	40,000	480,000	73,000
	11	690,000	53,000	680,000	50,000
	12	420,000	77,000	540,000	55,000
	13	1,000,000	70,000	1,300,000	96,000
	14	510,000	52,000	1,100,000	76,000
	15	60,000	3,800	83,000	2,800
	16	42,000	400	51,000	200
	25	560,000	25,000	530,000	41,000
	26	800,000	49,000	1,600,000	78,000
	27	230,000	31,000	420,000	29,000
	28	520,000	13,000	800,000	54,000
	29	8,000	100	16,000	600
	30	26,000	200	24,000	500
Sept.	1	.....	.....	.....	.....
	2	160,000	15,000	150,000	41,000
	3	750,000	26,000	280,000	27,000
	4	320,000	30,000	180,000	22,000
	5	53,000	7,300	23,000	1,800
	6	33,000	1,800	36,000	2,400
	8	560,000	11,000	670,000	6,200
	9	62,000	12,000	31,000	5,500
	10	6,000	500	7,000	300
	11	34,000	2,600	30,000	2,000
	12	29,000	2,600	38,000	2,600
	13	93,000	25,000	43,000	5,400
	15	110,000	5,600	65,000	23,000
	16	8,000	200	19,000	900
	17	70,000	4,300	26,000	4,200
	18	60,000	1,500	49,000	1,100
	19	90,000	7,900	120,000	13,000
	20	40,000	12,000	26,000	4,700
	22	64,000	5,200	80,000	14,000
	23	150,000	45,000	2,900,000	57,000
	24	47,000	15,000	180,000	40,000
	25	140,000	200	100,000	480
	26	110,000	50,000	120,000	45,000
	27	200,000	57,000	150,000	74,000
	29	160,000	93,000	140,000	64,000
	30	180,000	51,000	250,000	45,000
Oct.	1	4,200,000	66,000	210,000	47,000
	2	240,000	35,000	250,000	78,000
	3	230,000	64,000	220,000	47,000
	4	210,000	36,000	200,000	56,000
	6	580,000	100,000	510,000	70,000
	7	300,000	85,000	1,100,000	73,000
	8	370,000	100,000	210,000	110,000
	9	19,000	3,200	67,000	2,400
	10	220,000	100,000	370,000	62,000
	11	220,000	74,000	70,000	37,000
	13	130,000	45,000	140,000	39,000
	14	170,000	70,000	160,000	130,000
	15	310,000	62,000	250,000	45,000
	16	250,000	75,000	320,000	48,000
	17	350,000	170,000	480,000	110,000
	18	580,000	180,000	500,000	220,000
	20	470,000	150,000	390,000	140,000
	21	1,100,000	220,000	380,000	160,000
	22	1,000,000	170,000	200,000	46,000
	23	690,000	23,000	700,000	2,700
	24	220,000	88,000	140,000	24,000
	25	170,000	50,000	120,000	33,000
	27	630,000	130,000	270,000	42,000
	28	250,000	43,000	160,000	60,000
	29	240,000	160,000	230,000	110,000
	30	220,000	120,000	480,000	210,000
	31	390,000	150,000	120,000	85,000
Nov.	1	310,000	90,000	39,000	3,500
	3	170,000	95,000	130,000	72,000
	4	350,000	140,000	290,000	120,000
	5	790,000	290,000	160,000	65,000
	6	1,000,000	320,000	290,000	120,000
	7	97,000	62,000	57,000	37,000
	8	100,000	54,000	78,000	36,000
	13	230,000	66,000	.....	.....



SHIPPER NUMBER EIGHT

A. Farm Statistics:

Milking herd—13 grade Holsteins and Jerseys; daily milk production 300-350 lbs.

Milking machine—Hinman, 2 units; metal in good condition; rubber poor up to 9/26; new ones installed 9/27.

No water heater.

No tubs.

Cooler—Esco, 4-can capacity; poor condition; no circulator.

Strainer—Dome, good condition. Pails—good.

Air line to compressor—adequate pitch.

Washing Personnel 9/22-10/11—Mother (owner) washes equipment after morning milking; son after night milking. Mother had difficulty speaking and understanding English. Attitude to investigation improved when convinced visits were not "official". Son disinterested, did not live at home; hurried his chores; habit of feeling inflations, after treatment, with dirty hands.

B. Previous Washing Methods (Statement)

After a.m. milking. All equipment cold-water-rinsed in milkhouse; brought to kitchen; units disassembled and scrubbed with hot soap solution. Rinsed with warm water, reassembled, returned to milkhouse, racked. Once weekly, chlorine added to soap solution.

After p.m. milking. Equipment drained, rinsed with cold water in milkhouse, racked to dry.

C. Monoglyceride Cleaning. Condition of equipment on 9/18 threw doubt on daily disassembly claimed. Acid-wetting agent scrub and soak performed 9/21; but mother unwilling to alter cleaning treatment until 9/26 when milking machine was fitted with new rubber.

After a.m. milking (9/29-10/11) Equipment drained, taken to kitchen; milking units disassembled and immersed in warm monoglyceride solution; brushed; warm-water-rinsed, reassembled, returned to milkhouse; racked. No further acid-monoglyceride treatment.

After p.m. milking (9/29-10/11) Hot water taken from house to barn. Monoglyceride added; sucked through inflations (not brushed) into buckets; buckets shaken; opened, and solution removed to rinse other equipment. All equipment then brought to milkhouse, cold-water-rinsed, drained and racked.

D. Cleaning after 10/11 (Statement)

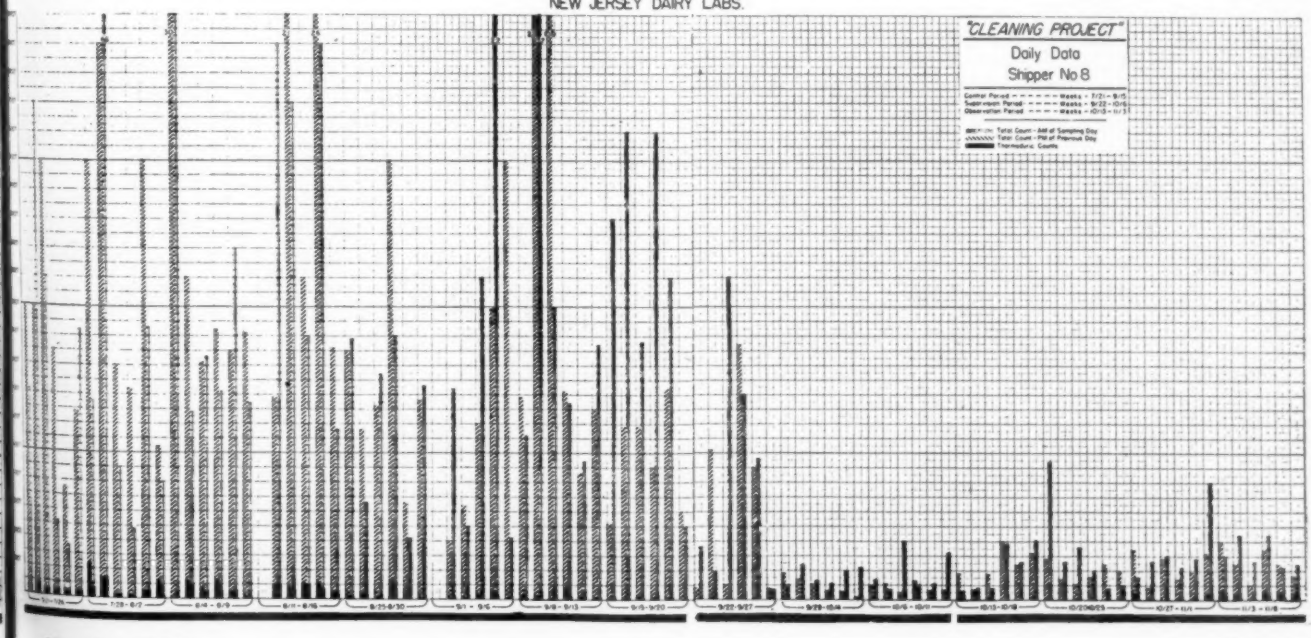
Claimed same method followed during latter portion of supervision period, still in use. Mother was selling off cows; son even less attentive to chores than previously.

E. Standardization Observations: Udder hair not clipped; one wiping cloth used at first visit, and continued throughout; foremilked; no strip cup; no rocking of cans; extremely slow cooling—compressor never brought to point where ice would form on evaporator.

BELLE MEAD PRODUCERS
SUMMARY DATA
GROUP 2 — SHIPPER 8

Date		—NIGHT MILK— Total Count	Thermodurics	—MORNING MILK— Total Count	Thermodurics
July	17	.....	.....	350,000	24,000
	21	1,000,000	2,000	710,000	1,300
	22	1,000,000	39,000	1,700,000	38,000
	23	1,500,000	27,000	1,100,000	21,000
	24	850,000	14,000	260,000	19,000
	25	380,000	23,000	180,000	2,400
	26	640,000	43,000	920,000	19,000
	28	1,500,000	120,000	680,000	32,000
	29	1,900,000	68,000	6,600,000	71,000
	30	800,000	14,000	450,000	14,000
	31	720,000	13,000	240,000	3,500
Aug.	1	1,500,000	26,000	930,000	23,000
	2	520,000	61,000	400,000	8,000
	4	3,000,000	2,200	2,000,000	3,700
	5	1,100,000	62,000	640,000	43,000
	6	810,000	37,000	830,000	25,000
	7	920,000	65,000	710,000	26,000
	8	850,000	23,000	1,200,000	30,000
	9	910,000	9,200	670,000	6,000
	11	.....	.....	.....	.....
	12	690,000	49,000	1,900,000	38,000
	13	2,100,000	39,000	1,700,000	28,000
	14	1,100,000	52,000	900,000	46,000
	15	2,600,000	56,000	1,900,000	33,000
	16	860,000	27,000	580,000	14,000
	25	850,000	10,000	890,000	2,300
	26	580,000	18,000	330,000	8,400
	27	660,000	6,700	770,000	1,800
	28	1,500,000	66,000	900,000	18,000
	29	330,000	22,000	210,000	16,000
	30	680,000	9,900	730,000	2,400
Sept.	1	.....	.....	.....	.....
	2	200,000	4,300	720,000	2,500
	3	320,000	6,000	250,000	2,300
	4	600,000	18,000	1,100,000	12,000
	5	1,000,000	20,000	2,200,000	12,000
	6	1,500,000	4,000	210,000	400
	8	690,000	12,000	560,000	2,300
	9	2,500,000	10,000	3,700,000	12,000
	10	10,000,000	2,200	1,000,000	700
	11	710,000	39,000	670,000	6,400
	12	430,000	10,000	470,000	2,400
	13	650,000	5,300	870,000	2,800
	15	260,000	1,100	1,300,000	4,300
	16	590,000	2,800	1,600,000	3,800
	17	590,000	12,000	880,000	3,400
	18	450,000	1,100	1,600,000	200
	19	720,000	6,700	1,100,000	2,700
	20	300,000	800	250,000	2,200
	22	38,000	900	180,000	300
	23	510,000	4,700	96,000	1,500
	24	51,000	400	1,100,000	400
	25	870,000	100	700,000	100
	26	450,000	1,000	480,000	900
	27	38,000	900	34,000	100
	29	91,000	5,300	50,000	1,300
	30	70,000	1,400	120,000	400
Oct.	1	51,000	100	63,000	800
	2	30,000	1,100	55,000	400
	3	27,000	2,100	100,000	900
	4	10,000	100	110,000	300
	6	48,000	900	67,000	500
	7	53,000	1,500	35,000	200
	8	24,000	300	200,000	300
	9	65,000	200	50,000	2,100
	10	31,000	400	54,000	1,000
	11	33,000	600	160,000	3,600
	13	90,000	6,400	29,000	1,000
	14	35,000	300	41,000	100
	15	88,000	6,400	39,000	700
	16	200,000	700	190,000	1,500
	17	120,000	300	130,000	1,100
	18	160,000	5,800	200,000	5,000
	20	140,000	2,800	470,000	3,900
	21	70,000	1,700	130,000	1,400
	22	53,000	2,100	180,000	1,800
	23	17,000	300	100,000	800
	24	120,000	800	38,000	100
	25	97,000	2,800	48,000	1,100
	27	170,000	22,000	77,000	900
	28	41,000	3,900	130,000	900
	29	140,000	1,200	150,000	1,000
	30	69,000	4,500	110,000	2,300
	31	93,000	4,700	140,000	5,500
Nov.	1	160,000	18,000	400,000	4,800
	3	200,000	33,000	150,000	16,000
	4	120,000	22,000	220,000	6,100
	5	49,000	2,600	130,000	500
	6	170,000	33,000	220,000	8,100
	7	120,000	28,000	110,000	8,000
	8	81,000	24,000	120,000	3,500

NEW JERSEY DAIRY LABS.



SHIPPER NUMBER NINE

A. Farm Statistics:

Milking herd—21 grade Holsteins; daily milk production 380-420 lbs. Milking machine—Hinman, 2 units; metal—good; rubber—poor; new rubber installed 9/21.

No water heater.

No tubs. Cold water in milkhouse.

Cooler—Wilson, 6-can capacity, fair condition; no circulator.

Strainer—Dome, good condition. Pails—good condition.

Air line to compressor—adequate pitch.

Washing Personnel—Owner, wife and daughter both females resented any prying into methods at first visit but more cooperative after review of records. Owner cooperative throughout.

B. Previous Washing Methods (Statement)

After a.m. milking. After use, equipment rinsed with cold water and racked until barn chores completed. Then removed to house, where immersed in hot water containing Chloro-D powder. Some brushing, no regular disassembly other than once weekly. (First inspection—9/18—suggested no recent disassembly.)

After p.m. milking. Rinsed with cold water, drained, racked.

C. Monoglyceride Cleaning. Acid-wetting agent soak and scrub, and new rubbers installed 9/21.

After a.m. milking. Equipment drained and cold monoglyceride solution sucked through inflations in barn. Brought to kitchen one-half hour later, immersed in warm monoglyceride solution, disassembled, brushed; warm-water rinsed; drained, reassembled, returned to milkhouse. Warm water (120°F.) pre-use rinse.

After p.m. milking. Equipment drained; cold monoglyceride solution sucked through inflations in barn; no brushing; cans shaken, other equipment rinsed with solution removed from bucket. Monoglyceride solution not followed by rinse. Hot water (direct from kitchen) rinse before re-use.

D. Cleaning after 10/11 (Statement)

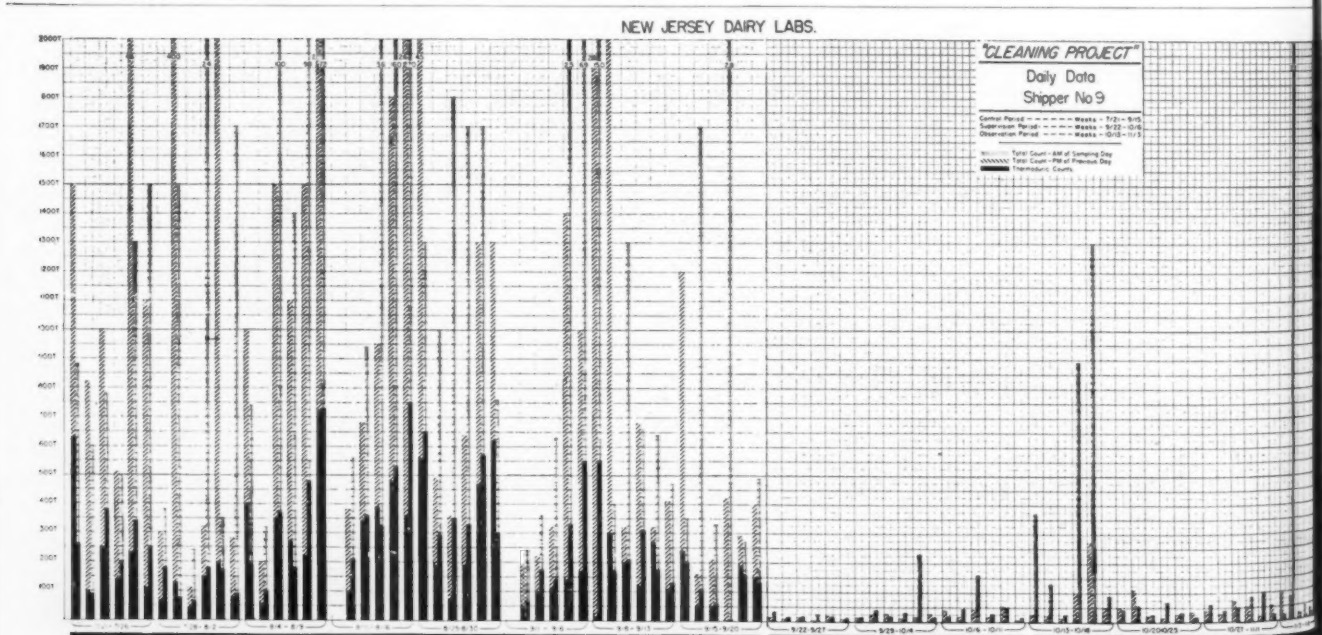
Same as in test procedure, but sometimes omitted or hurried after night milking. Knew of cow with serious udder infection which elevated counts tremendously on occasion.

F. Standardization Observations:

Udder hair not clipped; one wiping cloth used throughout; no foremilk or strip cup; no can rocking; no circulation; slow cooling.

GROUP 2 — SHIPPER 9

Date		—NIGHT MILK— Total Count	Thermodurics	—MORNING MILK— Total Count	Thermodurics
July	17	.....	.....	2,400,000	29,000
	21	1,500,000	630,000	880,000	260,000
	22	820,000	100,000	600,000	90,000
	23	1,000,000	250,000	780,000	380,000
	24	510,000	140,000	500,000	200,000
	25	4,600,000	230,000	1,300,000	340,000
	26	1,100,000	110,000	1,500,000	250,000
	28	300,000	66,000	380,000	180,000
	29	40,000,000	130,000	1,500,000	76,000
	30	110,000	43,000	240,000	65,000
	31	320,000	150,000	2,400,000	180,000
Aug.	1	2,000,000	200,000	350,000	170,000
	2	280,000	78,000	1,700,000	90,000
	4	1,000,000	400,000	740,000	190,000
	5	200,000	57,000	320,000	100,000
	6	1,500,000	350,000	10,000,000	370,000
	7	1,100,000	270,000	1,400,000	180,000
	8	1,500,000	220,000	9,800,000	480,000
	9	2,700,000	720,000	7,200,000	730,000
	11	.....	.....	.....	.....
	12	380,000	100,000	560,000	210,000
	13	680,000	340,000	940,000	360,000
	14	950,000	390,000	3,600,000	7,320,000
	15	1,800,000	480,000	16,000,000	530,000
	16	2,600,000	360,000	27,000,000	750,000
	25	4,500,000	560,000	1,300,000	650,000
	26	490,000	190,000	1,000,000	290,000
	27	360,000	75,000	1,800,000	350,000
	28	640,000	190,000	1,700,000	330,000
	29	1,300,000	470,000	1,700,000	570,000
	30	1,300,000	620,000	760,000	300,000
Sept.	1	.....	.....	.....	.....
	2	190,000	48,000	240,000	66,000
	3	220,000	95,000	360,000	170,000
	4	320,000	110,000	630,000	140,000
	5	1,400,000	140,000	2,500,000	330,000
	6	1,000,000	170,000	6,900,000	550,000
	8	2,800,000	12,000	15,000,000	550,000
	9	2,000,000	300,000	400,000	170,000
	10	320,000	200,000	1,300,000	210,000
	11	680,000	120,000	660,000	310,000
	12	320,000	270,000	640,000	170,000
	13	410,000	110,000	470,000	130,000
	15	1,200,000	240,000	350,000	200,000
	16	160,000	53,000	1,700,000	110,000
	17	210,000	47,000	330,000	58,000
	18	420,000	100	2,800,000	4,700
	19	290,000	190,000	270,000	160,000
	20	400,000	150,000	490,000	130,000
	22	14,000	400	33,000	700
	23	9,000	300	15,000	400
	24	14,000	800	17,000	600
	25	4,000	800	23,000	500
	26	20,000	800	18,000	1,100
	27	9,000	100	14,000	200
	29	14,000	100	16,000	400
	30	24,000	300	40,000	400
Oct.	1	27,000	1,300	19,000	400
	2	12,000	300	31,000	100
	3	16,000	4,500	230,000	2,800
	4	26,000	800	16,000	1,200
	6	38,000	2,200	20,000	200
	7	17,000	2,400	44,000	1,400
	8	42,000	1,000	160,000	500
	9	16,000	700	27,000	500
	10	52,000	2,300	47,000	400
	11	6,000	900	15,000	1,000
	13	24,000	1,500	370,000	2,800
	14	21,000	1,000	130,000	1,200
	15	12,000	1,000	23,000	900
	16	100,000	9,800	890,000	200
	17	270,000	1,100	1,300,000	900
	18	49,000	2,200	87,000	3,200
	20	46,000	1,700	42,000	1,000
	21	110,000	4,600	55,000	8,200
	22	19,000	3,200	24,000	500
	23	14,000	600	67,000	1,400
	24	25,000	2,700	31,000	2,400
	25	33,000	3,200	16,000	500
	27	38,000	6,500	60,000	1,800
	28	27,000	900	39,000	800
	29	71,000	5,000	46,000	2,200
	30	51,000	3,100	85,000	2,700
	31	18,000	4,100	100,000	1,100
Nov.	1	54,000	600	22,000	1,200
	3	100,000	4,600	20,000	4,800
	4	80,000	800	2,200,000	1,300
	5	21,000	1,200	20,000	1,700
	6	44,000	5,700	10,000	1,200
	7	31,000	5,100	18,000	6,300
	8	1,400,000	5,300	23,000,000	7,200
	13	30,000	1,500	.....	.....



SHIPPER NUMBER TEN

A. Farm Statistics:
Milking herd—13 grade Holsteins; daily milk production 220-250 lbs.
Milking machine—Hinman, 2 units; metal—good; rubber—poor; replaced with new 9/28.
No water heater.
Tub—galvanized washtub, portable. Cold water in milkhouse.
Cooler—Wilson, 4-can capacity, good condition. Circulator, good operating condition; no time switch.
Strainer—Dome, good condition. Pails in good condition.
Air line to compressor—adequate pitch.
Washing Personnel—Daughter of owner; conscientious; cooperative after explanation.

B. Previous Washing Methods (Statement)
After a.m. milking. Cold-water-rinsed, immersed in tub containing "hot" washing soda solution, disassembled partially and brushed. Rinsed with cold water, drained, racked. Once weekly (sporadic) chlorine solution rinse.
After p.m. milking. Rinsed with cold water, drained, racked.

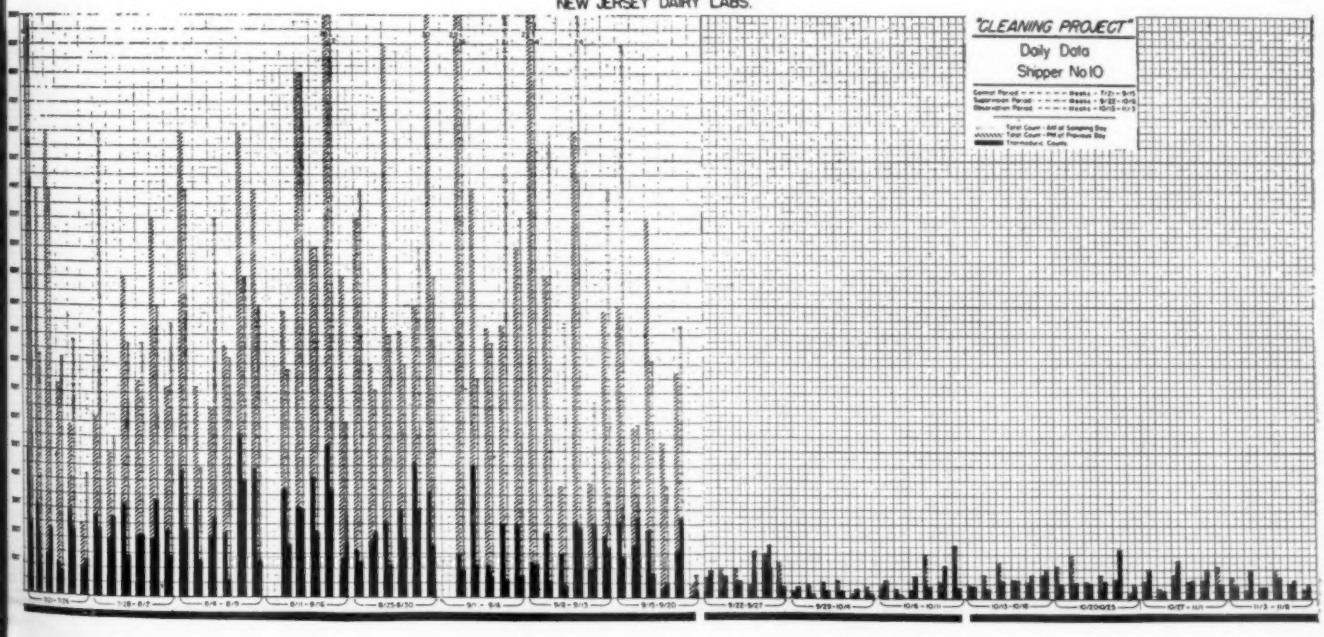
C. Monoglyceride Cleaning. Acid-monoglyceride soak and scrub 9/19 and again on 9/21. Rubber condition very visibly poor and all replaced on 9/27.
After a.m. milking. Cold-water-rinsed, disassembled completely; hot water brought from kitchen; units immersed in tub of warm glyceride solution, brushed, rinsed with lukewarm water, reassembled, racked.
After p.m. milking. Warm monoglyceride solution sucked through inflations to bucket, bucket shaken, solution used to rinse other equipment; all then cold-water-rinsed, drained, racked.

D. Cleaning after 10/11 (Statement)
Same system as followed during trial.

E. Standardization Observations:
Udder hair not clipped; one wiping cloth used throughout; foremilked throughout, but no strip cup. Rocking sporadic. Circulation continuous. Cooling rapid.

GROUP 2 — SHIPPER 10

Date	—NIGHT MILK— Total Count	Thermodurics	—MORNING MILK— Total Count	Thermodurics
July 17	.....	.....	2,200,000	150,000
21	4,000,000	500,000	3,600,000	240,000
22	1,400,000	310,000	830,000	87,000
23	1,600,000	140,000	1,400,000	230,000
24	730,000	110,000	820,000	84,000
25	590,000	290,000	880,000	230,000
26	250,000	100,000	420,000	120,000
28	620,000	280,000	1,600,000	230,000
29	500,000	200,000	550,000	270,000
30	1,100,000	320,000	870,000	140,000
31	740,000	210,000	870,000	210,000
Aug. 1	1,300,000	200,000	1,000,000	330,000
2	720,000	230,000	940,000	140,000
4	1,600,000	430,000	1,400,000	310,000
5	720,000	330,000	440,000	120,000
6	650,000	210,000	1,300,000	270,000
7	860,000	220,000	820,000	60,000
8	1,600,000	560,000	1,100,000	400,000
9	1,400,000	440,000	1,000,000	120,000
11	.....	.....	.....	.....
12	980,000	370,000	780,000	180,000
13	1,800,000	310,000	1,800,000	300,000
14	1,200,000	410,000	1,200,000	220,000
15	2,800,000	520,000	2,200,000	370,000
16	1,100,000	130,000	600,000	180,000
25	1,300,000	160,000	1,400,000	120,000
26	800,000	190,000	710,000	220,000
27	1,900,000	260,000	900,000	110,000
28	910,000	300,000	500,000	200,000
29	1,000,000	460,444	1,200,000	300,000
30	3,000,000	360,000	1,100,000	180,000
Sept. 1	.....	.....	.....	.....
2	2,900,000	150,000	3,600,000	94,000
3	1,400,000	450,000	750,000	110,000
4	920,000	110,000	870,000	88,000
5	930,000	250,000	2,100,000	57,000
6	1,200,000	250,000	1,300,000	74,000
8	2,200,000	120,000	5,400,000	110,000
9	1,100,000	220,000	1,600,000	55,000
10	350,000	150,000	940,000	39,000
11	1,600,000	260,000	2,400,000	240,000
12	390,000	96,000	670,000	250,000
13	980,000	210,000	1,400,000	170,000
15	1,000,000	260,000	1,900,000	140,000
16	580,000	180,000	590,000	270,000
17	1,300,000	230,000	810,000	81,000
18	530,000	32,000	380,000	46,000
19	770,000	160,000	930,000	270,000
20	45,000	5,900	78,000	17,000
22	67,000	22,000	92,000	38,000
23	100,000	26,000	72,000	31,000
24	96,000	43,000	58,000	30,000
25	44,000	28,000	160,000	90,000
26	150,000	110,000	180,000	100,000
27	120,000	37,000	40,000	25,000
29	22,000	3,600	39,000	1,700
30	44,000	6,200	15,000	4,800
Oct. 1	54,000	5,000	26,000	5,500
2	59,000	16,000	25,000	5,000
3	13,000	4,100	31,000	2,500
4	38,000	17,000	16,000	700
6	46,000	6,900	61,000	5,200
7	30,000	28,000	13,000	4,000
8	27,000	4,600	73,000	22,000
9	150,000	1,700	39,000	16,000
10	52,000	21,000	110,000	16,000
11	180,000	120,000	35,000	7,900
13	44,000	2,000	41,000	2,900
14	79,000	400	32,000	200
15	120,000	6,100	59,000	900
16	62,000	6,500	61,000	800
17	53,000	8,800	78,000	7,000
18	79,000	9,600	98,000	7,500
20	110,000	6,700	48,000	1,300
21	150,000	3,500	55,000	1,200
22	57,000	1,100	51,000	2,900
23	80,000	300	60,000	600
24	66,000	12,000	170,000	11,000
25	19,000	1,000	43,000	1,100
27	58,000	1,600	97,000	1,000
28	35,000	3,000	27,000	900
29	81,000	6,600	130,000	2,900
30	58,000	3,100	63,000	2,200
31	63,000	8,400	100,000	2,700
Nov. 1	110,000	1,000	50,000	800
3	72,000	1,400	43,000	700
4	29,000	1,000	97,000	900
5	38,000	700	39,000	200
6	100,000	3,400	71,000	1,600
7	47,000	3,600	62,000	2,600
8	31,000	700	45,000	2,900
13	11,000	1,700	.....	.....



SHIPPER NUMBER ELEVEN

A. Farm Statistics:

Milking herd—25 grade Holsteins; daily milk production 600-700 lbs.
Milking machine—DeLaval, 2 units; metal in fair condition; rubber—poor. No water heater.
Tubs—permanent, piped to cold water.
Cooler—International, capacity 8 cans, good condition. Circulation connected through time switch, faulty operation
Strainer—Dome, good condition. Pails—good condition.
Air line to compressor—adequate pitch.
Washing Personnel—Owner's wife, son and his wife, daughter. All quite conscientious. Owner refused to get new rubber parts—would wait until rubber quality improved.

B. Previous Washing Methods (Statement)

After a.m. milking. Equipment drained; cold solution of Chloro-D sucked through. Inflations removed from claws; parts separated and brushed with warm chlorine solution. All then cold-water-rinsed. Complete disassembly once or twice weekly for thorough scrubbing with warm chlorine solution.

After p.m. milking. Cold solution of Chloro-D sucked through inflations; solution then used for other equipment. All then cold-water-rinsed, drained and racked.

C. Monoglyceride Cleaning. Acid-monoglyceride soak and scrub on 9/19.

After a.m. milking. Equipment drained; hot water from kitchen to prepare warm monoglyceride solution; sucked through inflations. Two parts of inflations separated daily and brushed. (Inflations completely disassembled once or twice weekly. Complete disassembly of units once weekly.) Other equipment washed with monoglyceride solution after milk units. All rinsed with cold water containing Chloro-D, drained and racked.

After p.m. milking. Equipment drained; warm monoglyceride solution sucked through inflations; other parts rinsed with same solution. No disassembly, other than two-part inflations opened and brushed. All then cold-water-rinsed. This followed with cold rinse of Chloro-D solution. Drained, left assembled.

D. Cleaning after 10/11 (Statement)

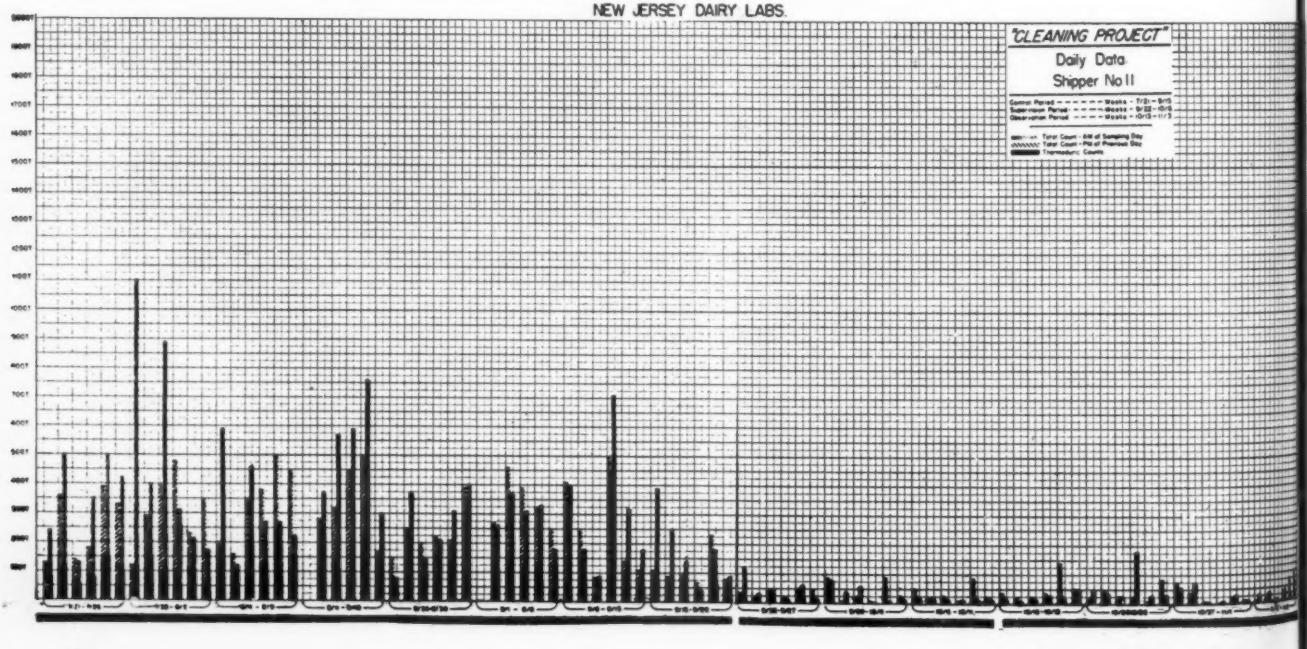
Same as during trial.

E. Standardization Observations:

Udder hair not clipped; one wiping cloth throughout; foremilked regularly; intermittent use of strip cup; no rocking, circultion haphazard; fair cooling.

GROUP 2 — SHIPPER 11

Date		—NIGHT MILK— Total Count	Thermo-durics	—MORNING MILK— Total Count	Thermo-durics
July	17	.....	.....	340,000	100,000
	21	130,000	9,800	240,000	65,000
	22	360,000	110,000	500,000	120,000
	23	140,000	67,000	130,000	55,000
	24	180,000	85,000	350,000	81,000
	25	390,000	140,000	500,000	150,000
	26	330,000	49,000	420,000	98,000
	28	120,000	50,000	1,100,000	180,000
	29	290,000	110,000	400,000	150,000
	30	400,000	100,000	890,000	110,000
	31	480,000	78,000	310,000	51,000
Aug.	1	230,000	120,000	210,000	80,000
	2	350,000	33,000	170,000	26,000
	4	200,000	85,000	590,000	130,000
	5	160,000	81,000	120,000	65,000
	6	350,000	97,000	460,000	170,000
	7	380,000	120,000	270,000	110,000
	8	500,000	230,000	270,000	130,000
	9	450,000	100,000	220,000	150,000
	11	.....	.....	.....	.....
	12	280,000	86,000	370,000	100,000
	13	320,000	120,000	570,000	110,000
	14	450,000	73,000	590,000	54,000
	15	500,000	200,000	760,000	120,000
	16	170,000	58,000	300,000	85,000
	25	150,000	30,000	80,000	32,000
	26	250,000	18,000	370,000	38,000
	27	200,000	54,000	150,000	37,000
	28	220,000	92,000	210,000	76,000
	29	210,000	110,000	310,000	93,000
	30	390,000	82,000	400,000	67,000
Sept.	1	.....	.....	.....	.....
	2	270,000	72,000	280,000	110,000
	3	460,000	95,000	370,000	100,000
	4	390,000	100,000	310,000	89,000
	5	320,000	120,000	330,000	74,000
	6	250,000	34,000	180,000	130,000
	8	410,000	89,000	400,000	46,000
	9	250,000	72,000	180,000	75,000
	10	84,000	22,000	88,000	8,200
	11	500,000	84,000	710,000	77,000
	12	140,000	42,000	320,000	39,000
	13	110,000	60,000	180,000	50,000
	15	110,000	12,000	390,000	50,000
	16	88,000	500	250,000	1,800
	17	96,000	15,000	140,000	26,000
	18	67,000	300	41,000	300
	19	230,000	110,000	180,000	61,000
	20	80,000	15,000	88,000	14,000
	22	36,000	14,000	120,000	18,000
	23	25,000	2,600	32,000	3,400
	24	48,000	7,500	47,000	5,300
	25	23,000	18,000	14,000	3,700
	26	51,000	19,000	62,000	20,000
	27	43,000	5,000	14,000	400
	29	88,000	65,000	78,000	18,000
	30	8,000	1,000	39,000	700
Oct.	1	21,000	400	58,000	800
	2	7,000	200	4,000	100
	3	90,000	47,000	8,000	1,500
	4	27,000	4,400	15,000	2,600
	6	51,000	16,000	24,000	6,100
	7	16,000	3,300	18,000	3,500
	8	27,000	5,300	14,000	300
	9	9,000	1,500	13,000	900
	10	86,000	23,000	15,000	2,400
	11	21,000	16,000	14,000	7,800
	13	37,000	18,000	17,000	9,200
	14	18,000	500	10,000	100
	15	22,000	10,000	17,000	2,800
	16	37,000	2,200	27,000	1,900
	17	140,000	44,000	24,000	7,300
	18	52,000	25,000	50,000	27,000
	20	19,000	7,100	46,000	5,800
	21	45,000	31,000	34,000	4,800
	22	27,000	9,700	26,000	6,800
	23	20,000	1,700	180,000	100
	24	7,000	1,300	29,000	4,200
	25	84,000	9,700	32,000	100
	27	74,000	19,000	56,000	10,000
	28	38,000	800	71,000	700
	29	9,000	2,000	6,000	3,000
	30	1,000	100	9,000	500
	31	16,000	15,000	30,000	28,000
Nov.	1	12,000	4,000	10,000	5,800
	3	6,000	3,700	29,000	8,600
	4	24,000	16,000	35,000	7,300
	5	11,000	3,500	10,000	1,500
	6	34,000	7,400	40,000	16,000
	7	78,000	65,000	19,000	12,000
	8	90,000	60,000	13,000	7,400
	13	78,000	2,000	.....	.....



SHIPPER NUMBER TWELVE

A. Farm Statistics:

Milking herd—31 grade Holsteins; daily milk production 550-800 lbs.
Milking machine—Surge, 2 units; metal—good; rubber—poor 9/18 replaced with new 9/22.

Water heater—Dairymaid, 30-gallon capacity, good condition.
Tubs—permanent, piped to hot and cold water.

Cooler—Wilson, 10-can capacity, good condition. Circulator inoperative.
Strainer—Atlantic, good condition. Pails in good condition.
Air line to compressor—adequate pitch.

Washing Personnel 9/18-10/11—Owner and hired boy; owner not very mature; boy unreliable; work frequently rushed.

B. Previous Washing Methods (Statement)

After a.m. milking. Cold-water-rinsed through inflations; immersed in tub of warm alkali-and-chlorine solution without disassembly, brushed. Cold-water-rinsed, drained, racked. Random complete disassembly.

After p.m. milking. Same as after a.m.

C. Monoglyceride Cleaning. Acid-monoglyceride soak and scrub 9/18. After a.m. milking. Drained, milk tubes removed from covers; all immersed into warm monoglyceride solution, brushed; cold-water-rinsed, re-assembled, drained, racked. No further acid-monoglyceride treatment.

After p.m. milking. Same as after a.m., but tendency to hurry.

D. Cleaning after 10/11

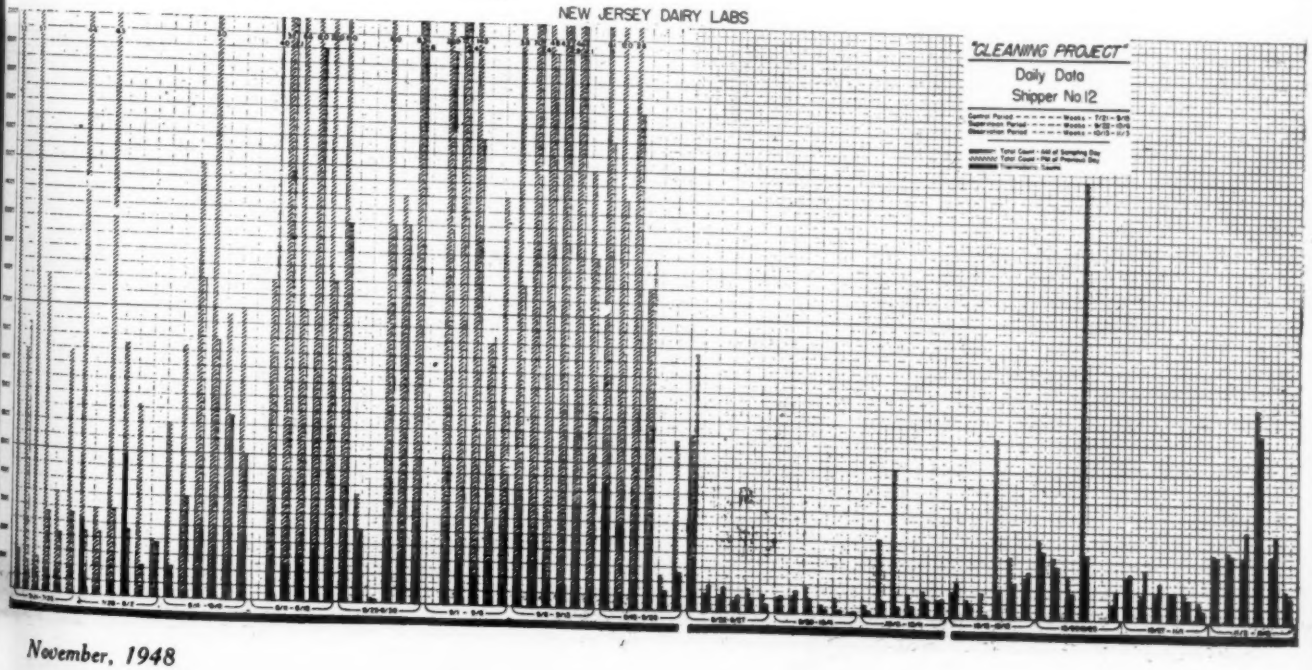
Returned to alkaline cleaner week after test period, when monoglyceride supply exhausted. Used in same manner as monoglyceride, but hurt hands and returned to monoglyceride.

E. Standardization Observations:

Udder hair not clipped; one wiping cloth throughout; no foremilking; no rocking of cans; no agitation; slow cooling.

GROUP 2 — SHIPPER 12

Date		—NIGHT MILK— Total Count	Thermo-durics	—MORNING MILK— Total Count	Thermo-durics
July	17	.....	.....	2,200,000	32,000
	21	3,200,000	11,000	140,000	800
	22	840,000	13,000	930,000	1,600
	23	5,700,000	14,000	120,000	2,100
	24	1,100,000	20,000	280,000	2,100
	25	350,000	5,400	210,000	4,900
	26	840,000	5,400	280,000	3,200
	28	4,400,000	260,000	220,000	24,000
	29	300,000	10,000	220,000	2,100
	30	6,300,000	40,000	300,000	5,800
	31	870,000	490,000	230,000	3,700
Aug.	1	660,000	6,400	110,000	1,600
	2	200,000	3,300	190,000	1,900
	4	600,000	6,300	110,000	2,600
	5	870,000	13,000	350,000	1,800
	6	1,500,000	40,000	1,100,000	4,900
	7	3,000,000	7,500	890,000	2,000
	8	980,000	23,000	630,000	2,800
	9	1,000,000	15,000	500,000	2,300
	11	.....	.....	.....	.....
	12	1,100,000	77,000	4,000,000	21,000
	13	3,200,000	120,000	2,100,000	45,000
	14	6,600,000	150,000	1,000,000	31,000
	15	12,000,000	180,000	1,900,000	25,000
	16	22,000,000	7,200	1,100,000	8,400
	25	15,000,000	45,000	1,300,000	15,000
	26	370,000	23,000	250,000	26,000
	27	16,000	300	10,000	100
	28	10,000,000	72,000	1,300,000	31,000
	29	1,400,000	54,000	1,300,000	60,000
	30	8,300,000	29,000	2,600,000	27,000
Sept.	1	.....	.....	.....	.....
	2	20,000,000	38,000	1,900,000	14,000
	3	7,200,000	140,000	2,400,000	25,000
	4	14,000,000	89,000	1,600,000	14,000
	5	900,000	15,000	920,000	11,000
	6	1,400,000	70,000	670,000	8,000
	8	3,800,000	7,000	1,100,000	10,000
	9	7,000,000	19,000	2,400,000	7,800
	10	4,800,000	1,800	1,900,000	7,900
	11	4,200,000	70,000	2,900,000	80,000
	12	4,600,000	25,000	2,100,000	12,000
	13	1,500,000	20,000	1,200,000	19,000
	15	8,100,000	430,000	1,600,000	19,000
	16	12,000,000	4,000	1,400,000	6,100
	17	2,600,000	6,100	1,700,000	6,200
	18	1,100,000	12,000	1,200,000	2,100
	19	120,000	24,000	68,000	8,200
	20	580,000	10,000	130,000	20,000
	22	600,000	71,000	880,000	67,000
	23	62,000	300	91,000	5,400
	24	57,000	22,000	85,000	23,000
	25	39,000	6,100	58,000	7,300
	26	82,000	9,500	50,000	9,100
	27	63,000	3,300	29,000	2,700
	29	55,000	6,100	36,000	4,400
	30	61,000	8,600	78,000	2,200
Oct.	1	92,000	3,600	50,000	8,100
	2	31,000	4,100	17,000	3,600
	3	55,000	5,100	15,000	2,400
	4	7,000	600	12,000	1,800
	6	34,000	6,300	16,000	800
	7	260,000	2,200	46,000	3,200
	8	500,000	66,000	32,000	2,600
	9	72,000	5,800	35,000	2,300
	10	86,000	12,000	56,000	2,500
	11	57,000	14,000	61,000	7,800
	13	88,000	10,000	120,000	11,000
	14	60,000	7,600	50,000	4,700
	15	86,000	3,400	13,000	1,900
	16	610,000	3,500	95,000	5,600
	17	210,000	7,400	120,000	4,600
	18	140,000	19,000	160,000	10,000
	20	270,000	29,000	230,000	7,300
	21	210,000	18,000	180,000	19,000
	22	150,000	9,600	89,000	5,800
	23	1,500,000	17,000	220,000	10,000
	24	.....	.....	.....	.....
	25	53,000	300	98,000	1,500
	27	150,000	2,500	160,000	400
	28	90,000	100	170,000	1,200
	29	93,000	300	130,000	500
	30	93,000	300	100,000	1,400
	31	100,000	700	73,000	200
Nov.	1	67,000	1,000	39,000	800
	3	230,000	4,500	220,000	1,300
	4	240,000	2,800	230,000	1,900
	5	220,000	13,000	310,000	11,000
	6	730,000	19,000	640,000	11,000
	7	230,000	24,000	300,000	12,000
	8	110,000	22,000	86,000	19,000
	13	270,000	4,700	.....	.....



SHIPPER NUMBER THIRTEEN

A. Farm Statistics:
Milking herd—50 grade Holsteins; daily milk production 800-950 lbs.
Milking machine—Surge, 4 units; metal—good; rubber—very poor; replaced 9/21

No water heater.
No tubs. Cold water in milkhouse.
Cooler—Esco, 12-can capacity; new; circulator connected through time switch, good operating condition.
Strainer—Dome, good condition. Pails in good condition.
Air line to compressor—adequate pitch.
Washing Personnel—Owner's wife; intelligent and conscientious.

B. Previous Washing Methods (Statement)
After a.m. milking. Rinsed with cold water; brought to kitchen; disassembled completely, brushed with hot alkali solution. Cold-water-rinsed, drained, and returned to milkhouse; racked.
After p.m. milking. Drained; rinsed with chlorine solution in milkhouse, then with cold water, drained, racked.

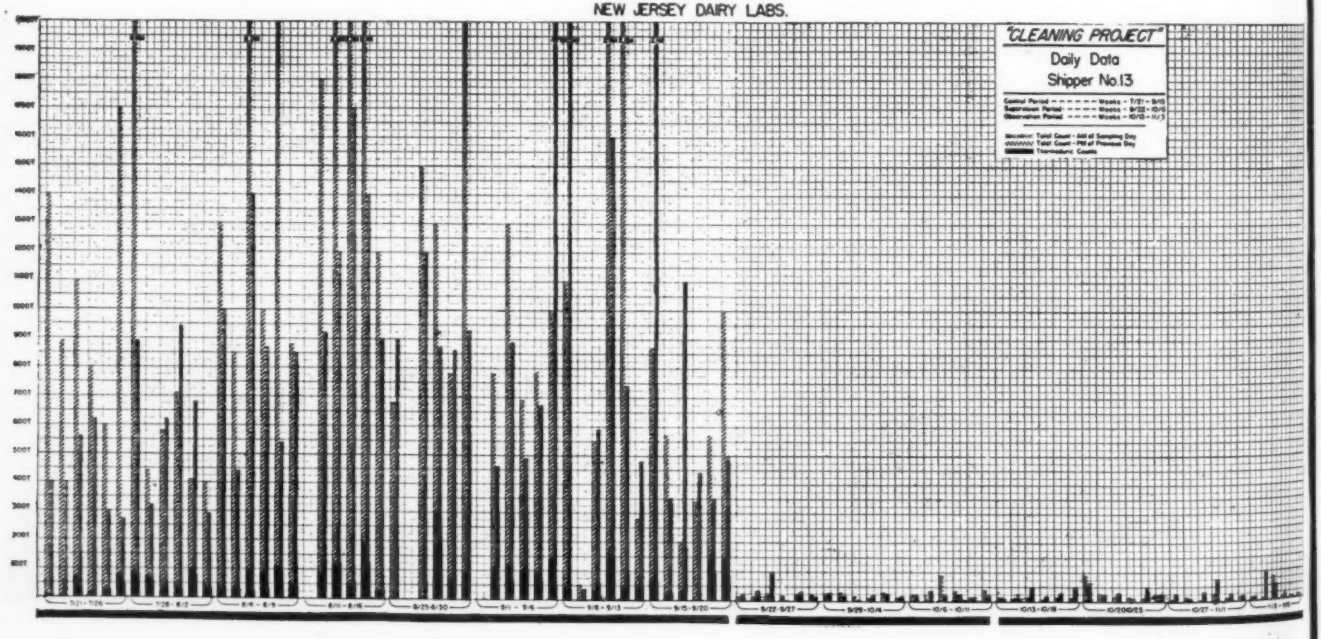
C. Monoglyceride Cleaning. Acid-wetting agent soak and scrub 9/21.
After a.m. milking. Drained, taken to kitchen, disassembled completely, immersed in hot monoglyceride solution, brushed, warm-water-rinsed, reassembled, returned to milkhouse, and racked.
After p.m. milking. Drained; warm monoglyceride sucked through inflations in milkhouse; inflations brushed. Buckets shaken, opened; then all parts brushed; solution used for other units, then for other equipment. All cold-water-rinsed, drained, racked.

D. Cleaning after 10/11
Same as in trial period.

E. Standardization Observations:
Udder hair not clipped; one wiping cloth throughout; foremilked and strip cup used throughout; rocked cans from 9/22; circulation on from immersion of first can for one cycle following milkhouse chores. Rapid cooling.

GROUP 2 — SHIPPER 13

Date		—NIGHT MILK— Total Count	Thermodurics	—MORNING MILK— Total Count	Thermodurics
July	17	.....	.....	1,000,000	69,000
	21	1,400,000	10,000	400,000	2,600
	22	890,000	900	400,000	400
	23	1,100,000	69,000	560,000	35,000
	24	800,000	17,000	620,000	10,000
	25	600,000	25,000	300,000	23,000
	26	1,700,000	80,000	270,000	46,000
	28	8,800,000	90,000	890,000	80,000
	29	440,000	71,000	320,000	55,000
	30	580,000	25,000	620,000	43,000
	31	710,000	42,000	940,000	23,000
Aug.	1	410,000	100,000	680,000	76,000
	2	400,000	39,000	290,000	31,000
	4	1,300,000	38,000	1,000,000	17,000
	5	850,000	36,000	440,000	29,000
	6	2,300,000	93,000	1,400,000	20,000
	7	1,000,000	90,000	870,000	35,000
	8	2,000,000	110,000	540,000	90,000
	9	880,000	45,000	850,000	35,000
	11	.....	.....	.....	.....
	12	1,800,000	88,000	920,000	110,000
	13	2,200,000	120,000	1,200,000	120,000
	14	2,300,000	50,000	1,700,000	59,000
	15	2,100,000	190,000	1,400,000	120,000
	16	1,200,000	31,000	900,000	32,000
	25	680,000	5,900	900,000	16,000
	26	.....	.....	.....	.....
	27	1,500,000	500	1,200,000	100
	28	1,300,000	300,000	870,000	210,000
	29	780,000	75,000	860,000	78,000
	30	2,000,000	96,000	930,000	88,000
Sept.	1	.....	.....	.....	.....
	2	780,000	110,000	460,000	54,000
	3	1,300,000	120,000	890,000	65,000
	4	690,000	100,000	490,000	110,000
	5	800,000	95,000	670,000	65,000
	6	1,000,000	140,000	4,700,000	48,000
	8	1,100,000	40,000	2,500,000	22,000
	9	51,000	1,900	37,000	800
	10	550,000	32,000	590,000	58,000
	11	2,900,000	160,000	1,600,000	150,000
	12	2,200,000	44,000	740,000	89,000
	13	280,000	44,000	480,000	49,000
	15	870,000	67,000	2,100,000	66,000
	16	570,000	8,600	350,000	4,400
	17	200,000	30,000	1,100,000	180,000
	18	340,000	800	440,000	1,700
	19	570,000	150,000	350,000	95,000
	20	1,000,000	140,000	500,000	83,000
	22	14,000	1,300	22,000	1,400
	23	15,000	1,000	34,000	300
	24	26,000	500	96,000	800
	25	19,000	3,600	2,000	500
	26	21,000	2,000	32,000	500
	27	22,000	400	15,000	900
	29	26,000	100	28,000	500
	30	30,000	700	19,000	700
Oct.	1	17,000	400	5,000	100
	2	11,000	100	20,000	1,400
	3	30,000	300	26,000	900
	4	12,000	200	18,000	200
	6	23,000	600	20,00	300
	7	20,000	600	36,000	500
	8	88,000	700	18,000	200
	9	35,000	500	25,000	100
	10	14,000	800	15,000	600
	11	38,000	1,100	20,000	3,400
	13	15,000	600	9,000	800
	14	8,000	400	11,000	400
	15	15,000	200	49,000	300
	16	7,000	100	18,000	100
	17	13,000	100	28,000	900
	18	12,000	600	50,000	1,000
	20	87,000	2,800	63,000	1,500
	21	26,000	600	24,000	500
	22	17,000	700	30,000	1,000
	23	15,000	500	11,000	500
	24	12,000	100	49,000	100
	25	21,000	400	22,000	400
	27	7,000	500	26,000	1,100
	28	15,000	500	9,000	300
	29	3,000	600	31,000	1,600
	30	24,000	700	73,000	2,200
	31	10,000	800	23,000	300
Nov.	1	16,000	600	19,000	1,600
	3	11,000	4,800	14,000	800
	4	7,000	900	100,000	1,800
	5	80,000	100	53,000	200
	6	8,000	300	19,000	500
	7	7,000	500	6,000	1,300
	8	11,000	1,200	9,000	2,800
	13	17,000	500	.....	.....



"BELIEVE IT OR NOT, HOPE HAS AN INTELLIGENT IDEA!"

says CROSBY

CROSBY:

Folks, this is fantastic, but old Hope has a great idea. He thinks *everybody* ought to give U. S. Savings Bonds for Christmas presents!

HOPE:

Thanks for the kind words, son. But no kidding, ladies and gentlemen, those Bonds are sensational. They're appropriate for *anyone* on your list. On Christmas morning, nothing looks better in a stocking—except maybe Dorothy Lamour.

CROSBY:

Old Ski Nose is correct. And don't forget how easy it is to buy bonds—you can get 'em at *any* bank or post office.

HOPE:

How about it, Mr. and Mrs. America? This Christmas let's *all* give U. S. Savings Bonds!

Give the Finest Gift of all...

U.S. SAVINGS BONDS

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BULGARIAN AND ACIDOPHILUS

(Continued from Page 49)

the covered upper part of an aluminum or stainless-steel double boiler over boiling water for 30 minutes. Then, if *Lactobacillus bulgaricus* is to be used as the starter, place the upper part of the double boiler in a pan of cold water until the milk cools to a temperature of 100° F., or until the outside of the vessel feels merely warm to the hand. If a mixed culture containing *Streptococcus lactis* is to be used as the starter, cool the milk to 86°.

(b) If evaporated milk is to be used, add the evaporated milk to an equal quantity of cooled boiled water in the vessel in which the water was heated, and mix thoroughly. If *Lactobacillus bulgaricus* is to be used as the starter, warm the milk to 100° F. by placing the pan of milk in hot water; if a mixed lactic culture is to be used, warm the milk to 86°.

2. After the milk reaches the temperature suitable for the culture to be used, add 1 teaspoon of culture to each pint of milk, and hold the inoculated milk at that temperature for 12 to 18 hours, or until the milk curdles and the desired amount of acid has developed to suit the taste.

3. As soon as the milk curdles and the desired amount of acid forms, place the curdled milk in a refrigerator for an hour. A small amount of pasteurized cream may be mixed with the curd; then break or stir the curd to a smooth consistency, and put it back in the refrigerator until it is used.

Bulgarian Milk Made with a Mixture of Lactobacillus Bulgaricus Cultured Milk and Cultured Buttermilk—1. Prepare cultured buttermilk as indicated below:

(a) Heat fresh skim milk for 30 minutes at 160° to 190° F.; then cool to 70°.

(b) Add the lactic culture (*Streptococcus lactis*) to the cooled milk at the rate of 1 part of culture to 100 parts of milk, and mix thoroughly by careful stirring.

(c) Cover the inoculated milk with a loose-fitting lid and hold at 68° to 72° F. for 18 or 20 hours, or until the milk curdles and 0.8 to 0.9 percent of acid has formed.

(d) Cool the curdled milk to 50° F., and stir or break the curd until it is a smooth liquid.

2. To prepare mixed bulgarian milk, add 1 part of the prepared *Lactobacillus bulgaricus* cultured milk (made as described on page 7) to 9 parts of cultured bulltermilk. Add 5 percent of 30-percent pasteurized cream, if desired; mix thoroughly.

3. Pour the milk into bottles, cool to 50° F. or below as quickly as possible, and store the bottles in the refrigerator until they are used.

Preparation of Acidophilus Cultured Milk

Laboratory or Large-scale Procedure—1. After adding 5 percent of tomato juice or carrot juice to the fresh skim milk, place 1 liter of the mixture in each 2-liter erlenmeyer flask; plug the flasks with nonabsorbent cotton; and sterilize at 15 pounds of steam pressure for 20 minutes.

2. Cool the milk to 100° F., add 1 percent of culture, and mix thoroughly.

3. Incubate the inoculated flasks of milk at 100° F. for 20 to 24 hours or until the milk curdles and a small amount of whey appears on the surface.

Dairyman Adopts Refugee Nephew

Samuel Adler embraces his nephew, August Adler, 15 year-old orphan whose parents were murdered by the Nazis, as Bernard Kornblith, supervisor of the pier department of the Hebrew Sheltering and Immigrant Aid Society looks on. Mr. Adler, who resides at 2797 Webb Avenue, Bronx, New York, is president of the Adler Milk Company, 103 Bruckner Boulevard, the Bronx. He came to this country himself 36 years ago and is now making plans to adopt his nephew.

4. Cool the flasks of curdled milk to 50° F. and add 100 to 200 grams (10 to 20 percent) of lactose to each flask. After the lactose has become thoroughly wet, gently agitate each flask to incorporate the lactose thoroughly; then strain the mixture through a household strainer (1/16-inch mesh).

5. Pour the acidophilus milk into sterile bottles, cap the bottles, cool to 50° F. or below as quickly as possible, and keep the bottles in the refrigerator until they are used. When kept at 40° to 50°, a considerable proportion of the *Lactobacillus acidophilus* organisms remain viable for a week or 10 days.

Home or Small-scale Procedure—1. Either fresh skim milk or a good grade of commercially canned evaporated milk can be used.

(a) If fresh skim milk is used, mix about 2 ounces of tomato juice or carrot juice with a quart of skim milk, heat the mixture in the covered upper part of an aluminum or stainless-steel double boiler over boiling water for 30 minutes; then place the upper part of the double boiler in a pan of cold water until the milk cools to a temperature of 100° F., or until the outside of the pan feels merely warm to the hand.

(b) If evaporated milk is used, add 1 pint of evaporated milk to an equal quantity of cooled boiled water in the vessel in which the water was heated, and mix 2 ounces of tomato juice or carrot juice thoroughly into the milk and cover with a lid to fit the vessel. Warm the milk to 100° F. by placing the vessel containing the milk in a pan of hot water until the milk reaches the proper temperature.

2. After the milk is brought to 100° F., add a tablespoon of *Lactobacillus acidophilus* culture, stir the milk thoroughly, and replace the lid on the vessel. Hold the inoculated milk at a temperature of 100° for 20 to 24 hours, or until the milk is well curdled.

3. After the milk curdles, place the vessel of curdled milk in the refrigerator for an hour. Then add lactose to the

surface of the curd at the rate of ½ cup of lactose for each quart of curd. As soon as the lactose is thoroughly wet, stir the curd to incorporate the lactose in the curd.

4. After the curd is mixed thoroughly, strain the mixture through a household strainer. Then pour the acidophilus milk into bottles or other suitable containers, cool to 50° F. or below as quickly as possible, and keep them in the refrigerator until they are used.

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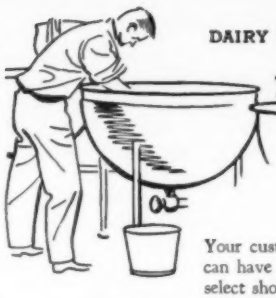
White Snakeroot Poisoning

Urbana, Ill., October 14—Trembles in cattle, a disease which mystified Illinois settlers during pioneer days, recently killed six cows in Livingston county. The settlers didn't know it, but cattle get the trembles by eating poisonous white snakeroot plants.

Dean Robert Graham, University of Illinois College of Veterinary Medicine, says a year seldom passes without an outbreak of trembles somewhere in Illinois. It generally occurs in late summer or early fall when pastures are dry, causing cattle to eat the green white snakeroot plants.

Dean Graham warns that milk from affected cows is not safe for human consumption. Poison from the plants passes into the milk of affected cows and may cause milksickness in persons who drink it. The sickness also has been traced to eating affected butter, cheese or meat.



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ECONOMICS OF DAIRY PLANT LABOR

(Continued from Page 28)

such schooling. Ignorance of the individual's function in the overall plant operation made for inefficient operation in many cases. A glaring example of what this failure means to the plant owner is illustrated by a situation observed in a midwestern plant.

In this particular plant, the standardization process was not carried on properly. As a consequence, milk of nonuniform fat test was sold daily. The high premium placed on a point of butterfat in the purchase price of fluid milk makes this practice highly unprofitable. Because of this combination of neglect and ignorance, the plant owner was not able to account for a large amount of butterfat.

In another large plant it was found that personnel were unable to prepare a cultured milk of uniform quality. The people involved in the operation did not understand the scientific principles involved in carrying a good culture and preparing a superior quality of cultured milk.

These experiences are duplicated over and over again in the industry, but the two examples given serve the purpose in stressing the need for well-directed and well-trained personnel in an industry that has become increasingly complex. Dairy plant personnel do not necessarily have to have a complex technical background. But if they are enabled to understand the principles involved, they will know their own importance in the overall plant operation. Plant employees should be taught all operations within the dairy plant. If this is accomplished successfully, the plant manager, seeking greater plant efficiency, can easily switch labor from one operation to another. In this manner, a plant employee will not be prone to stand around awaiting the personal minute-to-minute direction of the plant manager.

Well Planned Delegation of Duties

In a plant that has a paper operation along with the regular bottle operation, an individual was assigned to operate the paper bottling machine. The mechanical operation of the machine was not explained to him. Instead, he was told to observe certain phases of the bottling operation. If something went wrong, he was told to try a series of corrective methods. He was not told the whys and wherefores. Hence when a breakdown occurred it caused great commotion in the plant, and a considerable loss of costly labor time. Ignorance and neglect are high priced commodities.

In order to secure good plant management, there must be a well-planned delegation of duties and responsibilities. These responsibilities can only be assigned after plant employees have been taught the fundamentals of the different plant operations. Plant management must be constantly on the lookout for better usage of manpower. A sound labor program that provides for technical education and good labor management relations will usually yield a greater output per manpower input, keeping unit labor costs in the processing of fluid milk at a minimum. It might be added that such a program will place a dairy plant in better position to weather reverses that may come when product sales decrease in proportion to costs of supplies and labor.

A plant owner should make it his business to read and digest the latest scientific advances in the milk market milk industry. This information should be relayed to the employees in a manner that they can easily understand. The progressive plant managers should constantly refer to dairy science texts and journals, seeking the answers to technical problems as the new literature appears.

An enlightened dairy plant labor force will prove to be the backbone of a successful, efficient, and prosperous dairy enterprise.

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For the specialized equipment every dairyman needs, consult our Engineering Department. Draw on our years of experience in solving equipment problems for the dairy industry. We design equipment exactly suited to your plant and your production. Advisory service is free. Write and tell us what you need.

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NDC APPOINTS GEIL

Chicago, October 00—The appointment of Lloyd H. Geil as director of public relations of the National Dairy Council has been announced by Milton Hult, President. Mr. Geil will handle publicity, press and radio relations and serve as a consultant on public relations problems in the dairy industry. He will work out of the National Dairy Council's headquarters office in Chicago.

LLOYD H. GEIL

Before joining the National Dairy Council, Mr. Geil was manager of public relations for The Northern Trust Company, Chicago, and field representative in public relations for the Standard Oil Company (Indiana).

Prior to coming to Chicago, Mr. Geil was associated for ten years with Michigan State College at East Lansing. As professor of journalism and later as director of public relations, he directed and coordinated the public relations activities of the college. In this capacity he was responsible for creating, supervising and directing the extension informational services of the Schools of Agriculture and Home Economics as well as the general news services of the other schools. In addition, he was responsible for the development and distribution of many visual aids and bulletins of particular interest to industry, farmers and homemakers. He has taught courses at Michigan State College in business writing, news writing, feature writing and advertising and has had active newspaper experience.

Graduating from North Central College, Naperville, Illinois, with a bachelor of arts degree, Mr. Geil continued his education at Northwestern University, Evanston, Illinois, where he received his master of arts degree. He has done additional graduate work at the University of Michigan and Chicago.

Mr. Geil was recently elected president of the Chicago Chapter of the Public Relations Society of America.

●

SCIENCE FOR STUDENTS

New Brunswick—Changes have been made in the dairy products curriculum at Rutgers University to strengthen the scientific foundation of graduates.

Explaining the changes and their need, Dr. John W. Bartlett, head of the Dairy Department, stated that a student in dairy products now must concentrate more in the basic sciences. A student must take required courses in qualitative and quantitative chemistry, along with nine credits in his major field of study before the end of his sophomore year.

Of the 152 credits necessary for graduation, 27 are electives to allow the student to select additional courses in phases of dairy work in which he is especially interested. Among these are business administration, research and sales.

In addition, says Dr. Bartlett, a new course called "Quality Milk Control" has been added.

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It's easy to give your butter that rich, attractive flavor and aroma exactly the same all year round. F-L Butter Flavor Intensifier gives you that rich, real butter taste that folks want and pay for.

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1 pint .....$6.75 per pint
4 pints .....$6.10 per pint
25 c.c. Calibrated Applicator.$1.70
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ACCUMULATED DUST

(Continued from Page 24)

dust in farm samples is not unexpected. Although suggestions might be made to explain other variations in the incidence of certain types of materials among farms, stations, and creameries, no definite supporting evidence is available. Furthermore, too much emphasis should not be placed on the above differences, due to the limited number of samples and other differences involved in sampling. The chief significance of the results is that various types of objectionable material were found to be prevalent around different classes of establishments where dairy products are handled.

In comparing the data from air, empty cans, and dust and debris presented in table 2 it should be recalled that the studies were not made concurrently and that sampling techniques were necessarily different in each study. These factors would be expected to influence the relationship among the different groups. Nevertheless a logical relationship appears to exist. Since accumulated dust and debris are undoubtedly intermediate sources of the material found in air and most of that subsequently deposited in cans, it is reasonable to expect a higher incidence of most types of material in dust and debris samples. Furthermore, dust and debris are formed or accumulated over an indefinite period during which time a greater opportunity is presented for the addition of various types of material. In addition, much accumulated dust and debris is found in locations in closer proximity to, and subject to more direct contact with, the original sources of certain types of material. Such conditions would tend to increase the incidence of these types. For example, dust taken from ledges used as run-ways by rodents would be expected to have a higher incidence of rodent hairs. Similarly, samples obtained near corn cribs, normally inhabited by rodents, would likely show a greater prevalence of both vegetable parts and rodent hairs. On the other hand, samples taken from locations where the accumulation is largely by sedimentation would be expected to show the same general incidence of the various materials as found in air, modified by necessary differences involved in samples and sampling techniques.

Sediment Largely Airborne

It would seem reasonable, with samples of sediment or extraneous matter where the incidence of the various types of material is generally similar to that found in air, to conclude that the sediment was largely air-borne. When certain types show a marked increase over that in air, probability of more direct contact with sources closer to the original is indicated. Thus in cans (table 2) some more direct source of fibers and coal dust than from average air-borne material is probable. When all types are more common than in air, contamination with accumulated dust or fine debris is suggested since the latter generally contain all types of material in relatively high proportions.

It has become increasingly evident that much of the sediment problem in farm-separated cream is a result of contamination from miscellaneous little-considered sources. It is now recognized that materials of objectionable nature may gain entrance to cream even when remotely removed from their original sources. In fact, evidence suggests this may be the more usual means under present conditions. Air-borne material, accumulated dust that was at one time air-borne, and other fine debris are potential intermediate sources of objectionable material in dairy products.

Microscopic examination of samples of accumulated dust and fine debris from around 40 cream stations, 6 farms, and 3 creameries showed that vegetable parts, sand, coal dust, and fibers were prevalent types of material. More undesirable material such as insect parts, feather parts, rodent-like hairs, and other hairs were also found frequently. Metal

The Horizontal Plate Principle

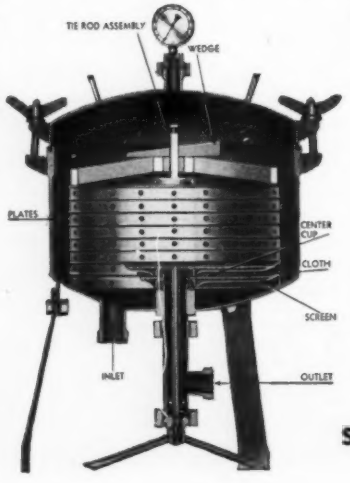
Gives You These 2 Important Things in

SPARKLER
Horizontal Plate
FILTERS

. . . for hot or cold milk

1. **Sanitation**—because Sparkler filters have all parts made of rolled, stainless steel, easily accessible for cleaning, with no internal threads, no castings, they offer the utmost in sanitary design.

2. **Production Efficiency**—because the filter medium is supported evenly on a horizontal plane by Sparkler stainless steel horizontal plates, filtration takes place uniformly over entire filtering area. *This means high flow rates.* The smallest particles, light or heavy, are removed. There is ample run-off space for filtered milk, yet the compact construction uses exceptionally small space.



"Sparkler Filters Give you Clean Milk Faster" . . . .

Construction and Design Features

1. Larger filtering area for continuous operation.
2. Positive "Sparkler" Wedge Seal — no by-passing.
3. Inexpensive, disposable filter medium — prevents blanketing.
4. All parts removable for easy cleaning.

Write for Details

SPARKLER MANUFACTURING CO.
Mundelein, Illinois

fragments were often present but were less common than other types.

The nature of the material in dust and fine debris was similar to that sometimes reported in sediment tests of cream for butter-making, and was the same as that previously found in air and in empty shipping cans. The incidence of the different types was higher although the relative proportions were generally similar. Consideration of the situation would suggest a close relationship between "extraneous matter" in air, in dust and debris, and also that in empty cream cans. The information obtained is further indication that much of the sediment problem in farm-separated cream arises from contamination from unobtrusive sources often considerably removed from the original. The situation emphasizes the necessity for attention to details in controlling air-borne material, accumulated dust, and other fine debris as potential intermediate sources of objectionable material in dairy products.

Acknowledgment is gratefully made to Mr. R. L. Cousins and Mr. M. E. Van Sickel, deputy commissioners of the Dairy Division, Kansas State Board of Agriculture, for obtaining many of the samples from around cream stations.

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1. Claydon, T. J., The Nature of Some Air-borne Material Around Dairy Establishments. J. Dairy Sci. 30: 473-482. 1947.
2. ————————, Air as a Source of Extraneous Matter in Dairy Products. Am. Milk Rev. 9: (10) 26. 1947.
3. ————————, Extraneous Matter in Empty Shipping Cans in Cream Stations. Natl. Butter and Cheese J. 39: (7) 34. 1948.

MILK GOES TO A VA HOSPITAL

(Continued from Page 20)

equipment of the lowest acceptable bidder is inspected by a board composed of a physician, a dietician and the supply officer, prior to final award of the contract.

Specifications for milk are set forth in the Veterans Administration Hospital and Centers manual STANDARD SPECIFICATIANS FOR PACKING HOUSE AND DAIRY PRODUCTS. Specifications for milk require not less than 11.25 per cent of milk solids and not less than 3.25 per cent milk fat. The usual pasteurizing procedures as listed in the United States Public Health Service Ordinance and Code are specified. Milk must be delivered within 24 hours after pasteurization and must be delivered in conformity with State or local laws when such laws or regulations require a higher percentage of butterfat and total milk solids or a lower minimum bacterial count. Milk must come from accredited herds or herds located in a modifieda accredited area and all persons in the plant handling the milk must have passed a satisfactory physical examination within one year previous to the date of proposal, or oftener as required by local health authorities.

The milk is checked each week in the hospital laboratory for butterfat content and bacterial count.

According to the Hospital's Manager, Dr. Lewis G. Beardsley, and the Chief Dietitian, Mrs. Esther Woodruff, dairy firms receiving the contract have furnished the hospital with a good product. Despite the constant necessity of opening up the bidding and the attendant change from one dairy to another, the operation has been working smoothly. The major problem, as far as the physical handling of the milk is concerned, is a question of storage. Mrs. Woodruff indicated a desire to try out paper containers as a possible solution to the storage problem and the handling of empties, but due to the increase in cost no bid up to the present time, has been accepted on milk in paper containers.

Walking through the immaculate corridors of the Hospital one could not but feel a sense of pride in this realization of an idea. Here was one of the finest examples of what a great and powerful nation could do. Veterans Hospitals are a bright chapter in the story of human achievement, dimmed only by the stupendous folly of the strange phenomena that brought them into existence.

1ST CHOICE of America's Leading Egg Merchandisers

From coast to coast, successful egg merchandisers are consistent users of SELF-LOCKING CUSHION EGG CARTONS. It's no secret why, because SELF-LOCKING CUSHION EGG CARTONS are more than egg cartons—they are a modern method of profitable egg *merchandising* . . . The keen, aggressive executives responsible for sales in firms such as listed below recognize this fact . . . capitalize on it!

Why Leading Egg Merchandisers Choose Self-Locking Cushion Cartons

1. Cushioned protection against costly egg breakage.
2. Outstanding display of eggs
3. Convenient and economical to use
4. Save time and labor
5. Simple and rapid set-up
6. Outstanding design reproduction
7. Single surface cover gives 100% display utility.

. . . A Few Users . . .

The Borden Co. — Bowman Dairy Co.
H. P. Hood & Sons — June Dairy Products Co., Inc.
Lambrecht Foods Co. — Rieck McJunkin Dairy Co.
Sheffield Farms Co., Inc. — Western Maryland Dairy
Chestnut Farms-Chevy Chase Dairy

SELF-LOCKING CARTON CO., 599 E. Illinois St., Chicago, 11, Ill.
Division of
SHELLMAR PRODUCTS CORPORATION
Telephone: Superior 5856

SELF-LOCKING EGG CUSHION CARTONS

MANUFACTURERS OF QUALITY EGG CARTONS - FOR OVER THIRTY YEARS

MILK-FED CADDIES!!

At the Louisville (Kentucky) Country Club, management during the past summer treated each caddy with a bottle of cold milk at the end of the ninth hole.

A bottle of free milk at the end of the ninth hole is the kind of treatment caddies received at the Louisville (Kentucky) Country Club. Above, Golf pro Eddie Williams, left, watches Raymond Johnson drinking and Edward Hogsdon about ready to do the same.

A recent check showed that caddies and club members had consumed nearly 6,000 half-pint bottles of milk during a three-month period.

Assistant golf pro Charlie Pace, in charge of the milk-feeding program, said it was the greatest morale builder he ever saw; the boys were much happier, looked healthier and did not tire quickly. Many of the boys, he believed, didn't get enough milk at home and this plan gave most of the regular caddies at least one or two bottles a day.

The enthusiastic support given to the project by the caddies and club members has caused management to plan on repeating the idea next summer. The club feels it's a project worthy of adoption on a national scale.

The milk-feeding project was brought to the attention of the National Dairy Council by Miss Emily Bennett, Director of the Central Dairy Council in Louisville, Kentucky.

DIVERSEY ADVANCES PEACOCK

Robert Peacock, formerly Manager of the Farm Quality Control Department of the Diversey Corporation, has been promoted to Promotional Manager of the Dairy Department, according to an announcement by W. E. Noyes, the firm's General Sales Manager.

Peacock, who succeeds H. A. Reiger, recently appointed Assistant General Sales Manager, as head of the firm's largest sales department, has a background of twenty years' experience, both as a salesman and manager serving the food industries.

Before joining Diversey in 1939, he became thoroughly familiar with food plant sanitation while successively employed by several chemical companies.

In 1940, he was made a senior salesman and before the end of that year he became manager of the Farm Quality Control Department. His promotional work in the interest of higher sanitation standards in the dairy industry have made him well known throughout the dairy industry.

Working closely with plants and fieldmen, Peacock and the men on his staff have brought educational farm meetings to thousands of dairy farmers in every section of the United States.

Peacock feels that the dairy industry can justifiably point with pride to the confidence of the American public in the quality of its products as evidenced by the present high rate of consumption. But to those responsible for production and processing, he is constantly advising, "Insure your continued success by maintaining high quality through a well planned and adequate system of sanitation from farm to consumer."

●

CYCLOTHERM NAMES POTTETTI

The promotion of P. M. Pottetti to the position of Sales Manager has been announced by Harper Holt, President of the Cyclotherm Corporation, New York City, manufacturers of steam and hot water generators.

Mr. Pottetti has served as Assistant Sales Manager of Cyclotherm for several years. Mr. Holt also announced the promotion of Guy B. Smith to Assistant Sales Manager in charge of Advertising and Sales Promotion.

●

ABBOTTS' EXECUTIVE PASSES

Morris Lifter, who until his recent extended illness was head of the purchasing department, assistant treasurer and a director of Abbotts Dairies, Inc., died on August 16th at the Jewish Hospital, Philadelphia, Pa.

Mr. Lifter was the founder and owner of the Lifter Ice Cream Company before its merger with Abbotts Dairies in 1919 and was actively associated in the ice cream industry for more than 54 years. He was founder, past president and a director of the Association of Ice Cream Manufacturers of Pennsylvania and New Jersey.

He was a member of B.P.O.E. Lodge No. 2 of Philadelphia; Mt. Moriah Lodge No. 155, F. & A.M., Oriental Chapter No. 183; Upper Council No. 46, 32nd Consistory, Crescent Temple Shrine, Veterans Association, Tall Cedars of Lebanon and B'nai B'rith Hirsinn.

●

BOSTON FORMULA

(Continued from Page 39)

more normal pre-war seasonal pattern of milk production. Short-season market receipts in Boston in recent years have been only about half of flush season receipts, as compared with 60 to 65 per cent before the war. Emergency imports from as far west as Minnesota have been necessary in four of the last five short seasons in order to meet sales needs, and in two of these four years milk sales actually had to be restricted because the milk could not be obtained. Last year's imports were close to 20 million pounds. Yet in June this year Class I sales were less than 50 per cent of market receipts.

The special supply-demand adjustment is a basic safeguard and an integral part of the entire program. The critical limits of 41 and 33 per cent surplus on an annual basis are designed to correspond to 25 and 15 per cent necessary operating reserve in the short production months. The mid-point of 37 per cent annually would normally provide a 20 per cent operating reserve to cover day to day fluctuations and thus insure an adequate supply in the shortest month of production.

On an empirical test, the new formula would have given slightly higher prices than actually prevailed in 1924 and 1925. Formula prices would have been lower in 1929 and 1930, but would not have fallen as sharply or to as low a point in 1931, 1932, and 1933. Formula prices would have been lower again in 1938, 1939, and 1940. The war years do not furnish a good comparison base because the wholesale price index was so much affected by OPA ceilings. The formula would have given a lower price in 1946 but a higher price in 1947. In retrospect it seems clear that the formula would have prevented some of the more obvious price maladjustments of the past in Boston.

Novel Features of Formula

The principal novel features of the Boston milk price formula are (1) the use of a demand index as one of the basic parts of the formula, (2) the provision for automatic price adjustments when receipts and sales get out of balance, and (3) the omission of market price quotations for any manufactured dairy product as a basic part of the formula. These innovations have been variously praised and criticized. Time and experience, of course, can be the only reliable judge as to the soundness

of these new features of the Boston formula both as a matter of principle and in respect of the details.

It should be stated that the price committee, the dairy industry in New England, and the Department of Agriculture are open-minded on the entire formula and these innovations. There is a strong feeling that the new pricing plan is sufficiently sound to warrant a real trial before it is changed in any basic sense. This seems to be necessary in order to build confidence among producers and consumers, and more important, is necessary in order to provide a real test of the adequacy of the formula.

Some modifications in the Boston formula may be needed in order to establish the appropriate relationship with milk prices in nearby markets. In order to accomplish this it may be desirable to try to develop a different or broader measure of demand. It might be possible, for example, to have the Department of Commerce develop a direct measure of regional income on a monthly or quarterly basis. Again, it might be feasible to develop and use a Department Store Sales index for the entire Northeast rather than for each Federal Reserve District. It should be recognized, also, on this inter-market problem, that when supplies are more normal, it may be more desirable to recognize local supply and demand conditions promptly than to follow a rigid price relationship with adjacent markets.

A composite of manufacturing milk prices might be used as an additional factor in the index or a partial substitute for the wholesale price index. Before the war the wholesale prices for some of the principal manufactured dairy products such as butter seemed to furnish a good broad index of changes in supply-demand conditions for all dairy products and in general economic conditions. This basic relationship is much less evidence since the war. Some of the prices have been erratic, and there is evidence of changes in the character of the demand for some of these products. There seems to be, temporarily at least, much less reason for using butter, for example, as a basic guide to fluid milk prices than might have been true before 1940.

Insurance Against Shortages

The supply-demand adjustment is most novel, of course, and is designed as insurance against shortages or over-production, as well as a means of helping to correct any deficiencies which the formula may contain. Here again the detailed application of the supply-demand adjustment must be looked upon as experimental. Both the amount and the timing of the price adjustments based on the amount of surplus in the market will need to be studied very carefully. This part of the formula could not be given too rigid an empirical test because obviously if prices had been different in past years, market receipts and sales might also have been different.

To the industry in New England one of the most encouraging aspects of the ne wpricing program has been the approval it has received from producers and producers' cooperatives, from milk dealers, and from the newspapers in southern New England markets. Perhaps equally encouraging is the fact that the prices which the formula has created have already stimulated milk production without seriously affecting sales. The producer reaction may be different, of course, when the formula begins to create price reductions, but there is reason to believe that most farm groups in the area understand and appreciate the fairness of the formula. There is reason to hope, therefore, that it may be the most orderly means of bringing about downward price adjustments when they are needed.

[1] Federal Milk Order No. 4 for the Greater Boston Marketing Area, Amendment No. 6 issued March 25, 1948.

[2] A Recommended Basis of Pricing Class I Milk in the Boston Market, September 1947. Market Administrator, 80 Federal Street, Boston 10, Mass. Paper presented September 14, 1948 at American Farm Economics Association, Green Lake, Wisconsin.

THE BRAIN THAT INSURES SMOOTH CONVEYOR OPERATION

KANCOL SOLUBE
CASE CONVEYOR LUBRICANT

Solube does a lubricating job as if you had an extra man in your plant. Conveyor breakdowns are cut by more than 50%! Production costs drop! Up goes efficiency!

Set up a Solube-filled Dispenser in your plant . . and relax! Your cases and cans will move smoothly to increased production. Tear out Coupon!

The R. J. KANTER Company
647 WATER STREET, NEW YORK 2, N. Y.
Specialists Since 1892 in Bottling Machine Lubrication

Case and Can Conveyor Lubrication
- Sanitary
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Gentlemen:
☐ Rush trial size half-drum of Solube.
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THE LATEST THING *in* DAIRY PLANTS

Rice County Cooperative Creamery Dedicates Up-to-the-Minute New Facility in Widely-Attended Ceremonies — Member of Land O'Lakes Group

VIEW OF THE NEW RICE COUNTY DAIRY COOPERATIVE PLANT AT FARIBAULT, MINNESOTA.

WITH more than 1,000 farmers, businessmen and community leaders in attendance, the large, ultra-modern Rice County Cooperative Creamery at Faribault, Minn., was formally dedicated Tuesday, September 28.

The plant, regarded as one of the finest in the Midwest, is a member creamery of Land O' Lakes Creameries, Inc., farmers' dairy and poultry marketing cooperative. It will produce butter, fluid milk, cheese and ice cream, marketing those products locally and nationally through Land O' Lakes.

The dedicatory program included trips through the plant, entertainment and a speaking program featuring the following speakers:

John Brandt, president, Land O' Lakes Creameries, Inc.; Lynn Getten, production manager, Land O' Lakes; Mayor Emil Peterson of Faribault; Harry Illsley, president of the Rice County Cooperative Dairy Association and member of the Board of Directors of Land O' Lakes; Dr. Carl Hanson, Faribault dairy inspector; Bernard Swenson, St. Paul, state deputy commissioner of agriculture; O. C. Johnson, director of dairy inspection of the state department of agriculture; Fred Holzman, sixth district Land O' Lakes fieldman; and Cal Karnstedt, Land O' Lakes news commentator.

John Brandt's Address

The speakers emphasized the value to a farmer of active participation in a cooperative organization and predicted that the new plant, built by the farmers themselves with the financial assistance of Land O' Lakes, will make it possible for Faribault to become a greater dairy center, thus benefiting the entire area.

Mr. Brandt, who is also president of the National Cooperative Milk Producers

John Brandt, president of Land O'Lakes Creameries, Inc., addresses the crowd attending the dedicatory ceremonies in the large warehouse of the new dairy plant at Faribault. His talk was also broadcast over Station KDHL, Faribault-Owatonna, which services a wide audience.

The crowd attending the dedicatory program of the new Rice County Cooperative Dairy Plant was fed, following the speaking program, with the cooperation of Faribault merchants. All on hand voted the event entertaining and instructive. The attendance was placed at over 1,000.

Association, traced the growth of the dairy industry and the cooperative movement in Rice County, culminating in the construction of the large, new plant.

He predicted that the new plant will become increasingly important to the community because of its flexibility and ultra-modern design and construction.

Brandt assailed the manufacturers of oleomargarine for their attempts, through a $6,000,000 lobby in Washington, to harm the nation's dairy industry. He urged all farmers to unite in battling the oleo lobby at the next session of Congress.

Warning against this country talking itself into a depression, Mr. Brandt declared that our worst danger is deflation. The one thing we must guard against, he said, is a determined effort to lower existing price levels, which would disturb the nation's economy to such an extent we will be headed for another depression.

Mr. Getten declared that the new plant is one of the finest to be found anywhere. He said that plans called for the beginning of cheese making October 1. The next production step, he said, will be the handling and retail selling and distribution to local homes of bottled milk. Butter and ice cream for local distribution will be packaged under the Land O' Lakes label, he said.

Mr. Getten emphasized that the new plant belongs to the farmers themselves and not to Land O' Lakes, which he explained is owned by tens of thousands of farmer cooperators in Minnesota, Wisconsin and North and South Dakota. He said that Land O' Lakes in 1947 had a total sales volume in excess of $100,000,000.

Preceding the creamery dedication was the annual meeting of the sixth district of Land O' Lakes Creameries, Inc.

Ultra-Modern Plant

The new plant, of brick and tile construction, is 171 by 150 feet in size. It is both fly and dust proof, with a modern ventilating system to assure a constant supply of clean, fresh air without the necessity of having the windows open. It meets both federal and new Minnesota state regulations on handling of milk and cream.

Features include a 16-inch, 355-foot well with a capacity of 500 gallons per minute; 4 separate coolers for fluid milk, cheese, butter and ice cream; enclosed driveway for unloading of milk and cream by patrons and trucks; warehouse area 120 by 30 feet in size; modern packaging and bottling equipment; a 105-foot smoke stack; and fluorescent lighting throughout.

Fred Holzman, center, fieldman for Land O'Lakes Creameries, Inc., chats with two of the more than 1,000 persons in attendance at the ceremonies dedicating the new Rice County Cooperative Dairy Plant at Faribault, Minn.

Provision was also made in construction of the plant for drying and evaporating of milk.

Three new trucks have been purchased by the association, with two to be used for local delivery and one for pickup of milk.

Situated on W. 7th Street, the plant will be accessible from proposed new Highway No. 60 and the new Lyndale Avenue road without farmers having to go through downtown Faribault. Foundation was laid August 15, 1947, and construction was started last March.

Interest in the construction of this large, modern plant dates back to the beginning of the war when the government made a plea for cheese and milk powder for American armed forces and the Allies.

At that time, the Faribault Cooperative Dairy building was converted into a lend-lease project where milk from neighboring creameries was diverted into cheese and some milk powder.

The project performed a service for the affiliated creameries that could not have been achieved by any one of them working alone. With the end of the war emergency, the creameries became interested in the construction of a new consolidated plant.

Members of the Board of Directors of the new dairy association are:

H. A. Illsley, Faribault, president; Henry Thibault, Faribault, secretary; George Becker, Dundas, treasurer; John Fischer, Adolph Degan, Fred Sartar and R. C. Borchert, all of Faribault, and F. J. Holzman, Minneapolis, representing Land O' Lakes, directors.

●

ELECTED PRESIDENT

Perry J. Crandall, treasurer of the Rieck-McJunkin Dairy Company, has been elected president of the Pittsburgh Control of the Controllers Institute of America.

The Controllers Institute of America is a national organization with 38 local chapters—called Controls—throughout the country. Founded in 1931, it now has 3,172 individual members.

When Shipping Eggs, Poultry & Dairy Products to New York

YOU WILL FIND THE COLLECTION OF DRAFTS WILL BE GREATLY FACILITATED IF THEY ARE DRAWN THROUGH

The MARINE MIDLAND TRUST COMPANY of NEW YORK

CHAMBERS STREET OFFICE . . . 130 CHAMBERS STREET

Located in the Center of New York's Wholesale Butter and Egg Trade

WE CORDIALLY INVITE YOUR PATRONAGE

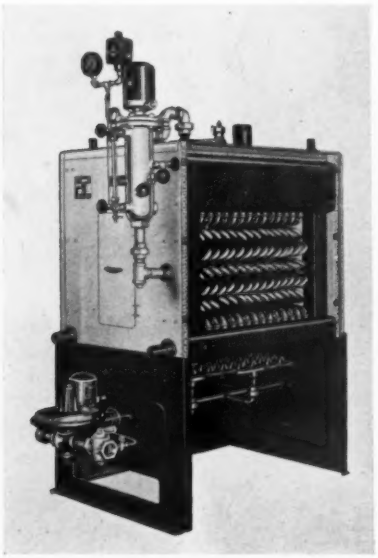
Member Federal Deposit Insurance Corporation — Member Marine Midland Group of Banks

USING OUR SEPARATOR • ITEMS OF INTEREST SKIMMED FROM HERE AND THERE

Gas or Oil Boiler

TO MEET INCREASED demands from plants needing plenty of low cost high pressure steam on short notice, The Bryan Steam Corporation, Peru, Ind., has announced the development of a boiler designed to produce maximum heating efficiency from either gas or oil fuel.

Bryan engineers, recognizing the heating problems of businesses having variable or irregular periods of operation,



point to the newly developed model as a solution to the problem. Copper tubes transfer BTUs (heat units) from fire to water. Fire can be turned off quickly, thus making for more economical operation whether steam is needed for 24 hours or for 15 minutes, says the manufacturer.

A new type water column is used in the boiler combined with a low water cut-off and feed pump control located in the same unit. This eliminates extensive pipe fitting and adjustment.

The new model is also claimed to be non-explosive and free from long, costly shutdowns.

The model which comes in 5, 10, 20 and 50 HP sizes, is especially designed for dairies, dry cleaning plants, hospitals, laundries, tire recapping shops and other plants needing quick, low cost heating systems.

Additional information concernings the model can be obtained by writing to the Bryan Steam Corporation, care of this publication.

•

Pipe Mending Cement

PLUMBER KRAK-STIK is a positive seal for repairing split soil pipes, sandholes, cracked pipes, gaskets, etc. According to the manufacturer, it stops the leak instantly even while liquid runs through the pipes under pressure or remains in the container. All that is required is to rub the stick heavily over any crack or leak in pipes, vats and other liquid containers.

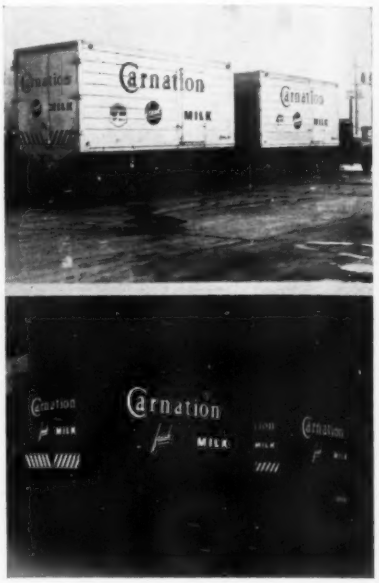
Plumber Krak-Stick makes a positive seal for any leak, even in ordinary water pipe splits that occur because of freezing temperature. Pipe surfaces do not have to be prepared for application of the material.

Literature and samples may be obtained from the manufacturers, Lake Chemical Co., care of this publication.

Day-Night Sign

SMITH-MORSE DECALS, INC., have announced the acquisition of exclusive sales rights to By-Buk processed Scotchlite for application to all highway transportation equipment.

Used for advertising messages, barricades or other identification on trucks, Scotchlite provides a true color sign by day or night. Millions of minute glass beads reflect light from headlights and



other sources at night, creating the effect of a brilliantly-illuminated but glareless sign, visible from any angle.

The process is a method of mounting which has made Scotchlite as easy to apply as a decal, reducing the application

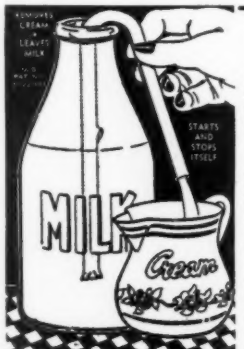
For Finest Texture and Flavor

MARSCHALL COTTAGE CHEESE COAGULATOR

in tablets

Economical — easy to use the right amount of rennet every time. Use 1 tablet for each 1000 lbs. of milk. 100 tablets $4 at your dealer's.

Marschall Dairy Laboratory, Inc.
MADISON 3, WISCONSIN



USEFUL — INTERESTING

An ideal Christmas gift

MAGIC CREAM SIPHONS for home use, remove cream from bottled milk for use with coffee, cereals and desserts.

PLEASE OLD CUSTOMERS — WIN NEW ONES

Leading dairy firms find Magic Cream Siphons a welcome sale booster aid. Homes using a cream remover consume more milk when they learn how many dishes are improved by the liberal use of milk instead of water.

Free sample for round or square bottles.

GLASS $15 per gross. $100 per 1000.
ALUMINUM $17.50 per gross. $115 per 1000

Complete Satisfaction Guaranteed

MERIT MANUFACTURING COMPANY
3455 EAST 150TH STREET CLEVELAND 20, OHIO

time to a fraction of that formerly necessary, according to the manufacturer. Scotchlite is available in two styles of lettering and in standard units for barricades and "inflammable" signs. Special designs of any type or color can be made to order.

●

Develops New Humidifier

VAPORIZING better than one-half gallon of water per hour, this unit is another of Walton Laboratories' line of humidifiers. According to the manufacturer, this particular unit also

brings diffusion of moisture and room air without need of ducts, outlets, air or drain piping. The water flow level is regulated by an automatic float assembly, and with the humidifier's 60-watt motor wired in series with a humidistat, completely automatic operation is maintained. This unit is now in production and prompt delivery can be expected.

●

All-Wheel-Drive Trucks

MARMON-HERRINGTON COMPANY, INC., Indianapolis, Ind., originators of All-Wheel-Drive conversions for standard, mass-produced trucks, has announced a new line of heavy-duty All-Wheel-Drive converted Ford trucks, identified as the "Q" Series.

There are six models in the "Q" Series. Three models are 4-wheel-drive, three models 6-wheel-drive. Gross vehicle weight for 4-wheel-drive models is 21,500 pounds, for 6-wheel-drive models 35,000 pounds. Wheelbases range from 136½ to 220 inches.

In building the "Q" Series, Marmon-Herrington starts with standard Ford F-7 models. Recently introduced Ford F-7 models are much bigger in all respects than any previous Ford trucks. With normal gross vehicle weight of 19,000 pounds, they are the first heavy-duty trucks to be built by Ford. All F-7 models are powered by Ford's new 145 horsepower V-8 engine.

●

Dairy Container Catalog

THIS NEW DAIRY CONTAINER CATALOG gives dairy specifications covering the complete line of all standard Duraglass dairy containers.

It includes specifications of height, diameter and weight, mold numbers, standard finishes and packing specifications. It is illustrated with photographs, diagrams and packing specifications. The catalog contains complete dairy container information, according to Owens-Illinois Glass Company, manufacturers of Duraglas milk bottles.

●

Boxed "Chocolate Fun"

A NEW PACKAGE containing cut-out characters of the Borden family is being used to merchandise the company's chocolate flavored syrup in Libbey Safedge tumblers. Chocolate concentrate syrup is packaged in four glasses decorated in applied color design with pictures of the Borden family. Litho-

graphed box manufactured by American Coating Mills; metal cap by White Cap Company; Libbey Safedge tumblers by Owens-Illinois Glass Company.

●

Coagulator Tablets

COTTAGE CHEESE coagulator in in tablet form, recently placed on the market by Marschall Dairy Laboratory, affords the maker of cottage cheese an opportunity to use rennet without the inconvenience of having to measure it accurately.

Uniformly made, the cottage cheese coagulator tablets bring out the desired flavor in cottage cheese, according to the manufacturers. The curds retain their shape and remain soft and tender.

The tablets are sold in bottles of 100, and each tablet is designed for 100 pounds of milk. The tablets are offered for sale through dairy supply houses.

Kurly Kate
METAL SPONGES
Designed especially for cleaning all types of dairy equipment and utensils. Will not rust or splinter cut the hands or injure metal or plated surfaces. Kurly Kate Metal Sponges are fast working, easy to use, and easy to keep clean. Made in STAINLESS STEEL, NICKEL, SILVER and BRONZE.
KURLY KATE CORPORATION
2215 S. MICHIGAN AVE. CHICAGO 16, ILL.
ORDER FROM YOUR JOBBER OR WRITE DIRECT
Kurly Kate
stainless metal sponge
FOR EASIER INDUSTRIAL CLEANING
SOFT ON HANDS
SANITARY

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BOX NO..... AMERICAN MILK REVIEW
175 CHAMBERS STREET NEW YORK 7, N. Y.

(The deadline for Classified Advertising is the 20th of the month preceding publication.)

No classified advertising will be accepted to run with borders or special spacing. All such advertisements are considered "Display" advertising and will be billed at regular display advertising rates. (Rates and mechanical requirements on request.)

FOR SALE — EQUIPMENT

FOR SALE—At our Staten Island Warehouse and Shop we have a good selection of Pasteurizers, Coolers, Bottle Washers, Bottle Fillers, Can Washers, Storage Tanks, Heaters, Separators, Weigh Cans, Filters, Ice Cream Freezers, Homogenizers, Vacuum Pans, Churns, Pumps, etc. Save money by considering good Used and Reconditioned Equipment. Write or wire your requirements. Lester Kehoe Machinery Corporation, 1 East 42nd Street, New York 17, N. Y. Telephone MUrray Hill 2-4616. 11-M

FOR SALE—One 100 gal. stainless steel Cherry-Burrell Spray Vat Pasteurizer, new in 1937. Very good condition. Cheap. Phone Victor 191 or write Victor Dairy, Victor, New York. 11-M

FOR SALE — Three 300 gallon Cherry-Burrell Spray Vat Pasteurizers with s.s. linings; one with s.s. exterior and two with painted steel exteriors. Thoroughly reconditioned. Lester Kehoe Machinery Corporation, 1 East 42nd Street, New York 17, N. Y. 11-M

FOR SALE — One Kendall-Lamar Can Washer with Motors, Automatic Can and Cover Inverter. Thirteen Stations—complete in good running order. Capacity twelve cans per minute. $1,000.00 F.O.B., Camden, New York. John E Rosasco Creameries, Inc. 11-M

FOR SALE — EQUIPMENT

REBUILT — Pasteurizers, Milk Coolers, Bottle Fillers, Ice Machines, Plate Coolers and Heaters, Homogenizers and Bottle Washers. Send us your requirements. Ohio Creamery Supply Company, 701 Woodland Ave., Cleveland 15, Ohio. 8-M-t.f.

FOR SALE—2000 and 3000 gallon Pfaudler Horizontal Glass Lined Tanks with agitators and motor drives. Lester Kehoe Machinery Corporation, 1 East 42nd Street, New York 17, N. Y. 11-M

FOR SALE—3HP 3Ph. motor driven 9" stroke Gould Deep well pump with 30 gallon pressure tank; 1946 Ames Steam generator 40HP 125 lb WP—with condensate tank and pump; 1000 lb C.P. motor driven churn; 4-300 gallon motor driven, tinned copper lined coil vat pasteurizers; 4x4 York compressor with 10HP motor and condenser; O and B double 14½" steel cheese press; 12,000 S.S. cheese vat, all welded; Damrow 16 ft. agitator; 6 ft. 3x3x1" S.S. tubes Specialty Brass milk heater; Damrow motor driven curd mill; 300 lb. Toledo platform scale; 30 14½x5½" Wilson Cheese hoops; 71 De Laval Separator complete; No. 192 separator De Laval serial 3603137; and a waukesha motor driven 1½" pump. O. H. Bean, 23 Leslie Avenue, Utica, N. Y. 11-M

Buy U. S. Bonds Today

FOR SALE — EQUIPMENT

FOR SALE—800 gallon Creamery Package Homogenizer, stainless steel, latest model 12,000 pound Van Gunten milk filter nickel Bagby sour cream filler Model D-2A (automatic) 25 gallon Stainless steel hopper, fills 40 units per minute. Large quantity of clean used 48 mm. economy round quart bottles at 2 cents each f.o.b., N. Y. C., also good, serviceable used standard round quart bottle cases at 25 each f.o.b., N. Y. C. Manchester Cream Co., Inc., 421 E. 174th Street, N. Y. 57, N. Y. 11-M

FOR SALE—One 300 gallon R. G. Wright Two Compartment Visco-Creamvat of all stainless steel construction with cooling coil in jacket. Lester Kehoe Machinery Corporation, 1 East 42nd Street, New York 17, N. Y. 11-M

FOR SALE—E-19 De Laval Separator nearly new, two hundred dollars. No. 15 De Laval Separator Motor Driven, one hundred dollars. 24-1" tube four ft. surface milk cooler with sliding aluminum covers $150. One hundred gallon Pfaudler C-Gal glass lined pasteurizer with white porcelain jacket, recording and indicating thermometers, perfect condition, $300. Type J Milwaukee Filler, all new shafts and gears, $200. Creamery Package Rotary Bottle Washer, 2 hp single phase motor very good condition, 22 bottles per minute, $300. Eight HP Vertical Flue boiler 100 lb. WP N. Y. State inspection, $300. 150 gallon Type E Cherry-Burrell Spray Vat Pasteurizer, all welded lining, steel jacket, fine condition, $500. 2 HP Single Phase Motor driven Brunner, low temperature compressor with difuser and valves, fine condition, $500. Cherry-Burrell Ladd three space hydraulic bottle washer with 3 HP single phase motor, good condition, $350. O. H. Bean, 23 Leslie Ave., Utica, New York. 11-M

FOR SALE—Electro-Pure HTST Pasteurizer. 600 qts. per hour. Complete. Ready to go. Bargain. C. Clarridge, Baldwin, Kansas. 11-M

FOR SALE—Four 550 gallon "lifetyme" (Alloy Products Co.) Vertical Coil Vats, all stainless steel construction. Lester Kehoe Machinery Corporation, 1 East 42nd Street, New York 17, N. Y. 11-M

WANTED — EQUIPMENT

WANTED — A good used Viscolizer or homogenizer. Give size, make, price and condition in first letter. Box 358, care this publication. 11-M

Cottage Cheese

tastes better, lasts longer, costs less when you make it with

F-L Coagulator

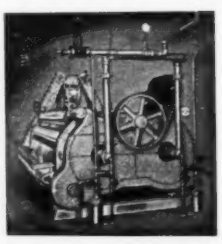
1 quart size . . . enough to coagulate 4,800 gallons of skim milk . . . only $5.00

F.O.B. Chicago. Send trial order. Satisfaction guaranteed or money back.

FLAVOR-LINE. INC.

W. E. WAGNER, *President*
357 West 63rd Street Chicago 21, Illinois

Better **DRY MILK**



AT LOWER COST
DRY MILK MACHINES
Built in Five Sizes

The patented, glass-smooth, "20-year cylinders" give years and years of maximum production of a superior dry milk at the lowest possible cost.

Many other exclusive features insure long life with low steam and power costs.

Complete details upon request.

OVERTON MACHINE COMPANY
DOWAGIAC MICHIGAN

FOR SALE — MISCELLANEOUS

FOR SALE—INSULATED MILK TRUCK BODIES for farm pick-up. Write for prices and deliveries. Millington Truck Body Co., Inc., Millington, Mich., Huntington, Ind.; Sparta, Wisc. 11-M-9

FOR SALE—Truck lettering and trademark decals, made for your truck and store advertising. Easy to apply; uniform, distinctive, economical for small or large needs. Write for catalog. Mathews Co., 827 So. Harvey, Oak Park, Illinois. 11-M-5

FOR SALE—Chocolate Milk made with Bradway Non-Settling Chocolate Syrup and Powder is superior. Place your trial order now. BRADWAY CHOCOLATE COMPANY, New Castle, Ind. 7-M-t.f.

FOR SALE—Used milk bottle crates. Can deface old name and rebrand. Write or phone for present day inventory. Ohio Creamery Supply Co., 701 Woodland Ave., Cleveland, Ohio. 7-M-t.f.

FOR SALE—400 gross used 56 MM stubby round and square quarts, $2.00 per gross F.O.B. our plant. Also 150 gross 56 MM ½ pt. rounds. Sunnydale Farms, Inc., 400 Stanley Avenue, Brooklyn, N. Y. 11-M

BUSINESS OPPORTUNITY

FOR SALE—Dairy plant in Wisconsin. This plant is located in Eagle River, Wis., in the heart of the tourist area on the only available business corner in the center of Eagle River where three highways meet. Doing between eighty and one hundred thousand a year in retail and wholesale dairy products, has small dairy bar in connection with tremendous possibilities. Reason for selling, recently injured back and will have to retire from active work. This business can be purchased for the worth of the property alone. Eugene W. Pehong, Rhinelander, Wisconsin. 11-M-3

FOR SALE — Modern Dairy plant in Northwest Indiana, doing 2000 units per day with plenty of opportunity for expansion. Business established 12 years ago, new modern building constructed in 1947, with automatic oil boiler, large refrigeration box, all necessary up-to-date equipment for pasteurizing, homogenizing and cheese making. Includes six late model trucks. Recent death in family makes sale necessary. Price $50,000.00. Box 345, care this publication. 11-M

FOR SALE—Modern Dairy Plant. Business established 21 years. Retail and Wholesale routes. 300 gal. daily. Equipment very good. $70,000 gross last year. Located central Wisconsin. Box 361, care this publication. 11-M

BUSINESS OPPORTUNITY

FOR SALE—Newly remodeled Milk & Ice Cream plant. All new dairy equipment. Six dairy stores, with luncheonette. City of 100,000 population, University town. In a beautiful city in middle States. Over $200,000 business last year. Good opportunity for live operator. Priced reasonable. Box 360, care this publication. 11-M

Cheese and Butter Manufacturing plant, good location in New York State, good roads, railroad and schools. O. H. Bean, 23 Leslie Avenue, Utica, New York. 11-M

FOR SALE — Modern Dairy and Ice Cream Plant, Dairy Bar. 6 routes in Wisconsin. Best of building equipment, good profits, very clean business. Box 364, care this publication. 11-M

POSITION WANTED

MILK ACCOUNTANT, AUDITOR, STATISTICIAN—Available for executive position, dairy company, or in-dairy industry organization; 35 years old; 15 years of experience in dairy industry as auditor and accountant; thorough knowledge in marketing problems, marketing orders, butterfat accounting; Salary $7,000. Box 356, care this publication. 11-M

PRODUCTION MAN seeking position in modern ice cream or milk plant. Experienced in the manufacturing of all ice cream products and standardizing mixes. Can operate either Vogt or C. P. continuous freezer and any make of ammonia compressors. Also well experienced in operating short time pasteurizer for milk. Am capable to plan work each day and organize men and their work. Am a married man, age 45, and have a son, 18 years old. I don't smoke or use intoxicating liquors. Available on short notice. Box 349, care this publication. 11-M

MILK ACCOUNTANT — COMPTROLLER — 35 years old; 12 years accounting experience in dairy industry; complete knowledge of butterfat accounting and plant operating costs; very familiar with milk marketing problems and government regulations; high references; seeks worthwhile connection; starting salary $7,500. Box 357, care this publication. 11-M

Dairy Plant manager desires position as plant manager or plant supt. Will consider profit sharing basis or salary. Life Experience. Married. Can furnish A-1 references. Box 363, care this publication. 11-M

POSITION WANTED

Physical Chemist desires position in milk industry which will lead to opportunity in management. S.M. Seven years research and teaching experience, M.I.T. Age 30. Family. Box 362, care this publication. 11-M

HELP WANTED

WANTED—Man to work in Dairy Plant, processing milk and dairy products. Worthwhile salary if employer satisfied. In reply give age and experience. Box 359, care this publication. 11-M

NEW DIAMOND DIVISION

Cleveland, O.–Broadening the scope of its customer service activities through a program dedicated to the increasingly efficient utilization of alkalies and related specialized chemicals by leading U. S. industries, Diamond Alkali Company today announced the creation of a new Technical Service Division headed by Walter C. Bates, manager, and Dr. George F. Rugar, assistant manager.

The new organization is designed to cover what the company describes as "all phases of service work connected with the sale and use of Diamond-made alkalies, co-products, and derivative specialty chemicals."

In making this announcement, C. C. Brumbaugh, general manager of the research and development department, said that while the newly-formed division has been set up as an integral part of the research-development organization located at the company's Painesville plant, it will function as a separate unit manned by a staff of 21 technical people recruited from the company's pure calcium products division technical staff, the Research Product Development Group, and technically trained personnel previously associated with the Sales Department in Cleveland.

"The title of this new group—Technical Service Division—signifies the principal purpose for which the division has been expressly established and organized Brumbaugh said.

Sales Service for Manufacturers of

MILK PRODUCTS

Evaporated Milk—Powdered Skim Milk — Powdered Buttermilk — Condensed Skim and Whole Milk — Powdered Whole Milk.

C. W. BURCKHALTER, Inc.

156 Franklin St. New York, N. Y.

WAlker 5-0727

MEDICALLY APPROVED

No milk except

Certified MILK

gives you the distinction of telling your customer you voluntarily submit to regulation of the Medical Profession.

THIS PRESTIGE INCREASES ALL YOUR SALES

Write now for information

AMERICAN ASSOCIATION OF MEDICAL MILK COMMISSIONS

1265 Broadway, N. Y. 1

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OF EVENTS TO COME

Vermont Dairy Plant Operators and Milk Distributors—Twenty-seventh annual conference, Department of Dairy Husbandry, University of Vermont, Burlington, November 3 and 4.

National Co-operative Milk Producers Federation—Thirty-second annual convention will be held in Portland, Ore., November 9 to 12. Secretary, Charles W. Holman, 1731 Eye St., N. W., Washington 6, D. C.

Iowa Milk Dealers Association—Annual convention will be held at the Hotel Fort Des Moines, Des Moines, Iowa, November 12 and 13, 1948. Secretary, John H. Brockway, 903 Walnut Bldg., Des Moines 9, Iowa.

American Public Health Association—Nov. 8-12, Boston, Mass. Dr. Reginald M. Atwater, 1790 Broadway, New York 19, N. Y.

Illinois Dairy Students Reunion—Students and graduates of University of Illinois will hold dairy manufacturers reunion at Urbana, Ill., November 13. Secure additional information from Justa G. Kuebler, 706 Maple, Downers Grove, Ill.

Washington State Milk Dealers Association—Ninth annual joint convention of milk dealers, ice cream manufacturers and creamery operators will be held in Seattle, November 17 to 19. Secretary, A. Frank Bird, Washington State Milk Dealers Association, Bob Skinner Bldg., Seattle 1, Wash.

Minnesota Milk Council—Annual convention will be held at the St. Paul Hotel, St. Paul, Minn., November 29 to December 1. Secretary, D. T. Carlson, Willmar, Minn.

Western States Dairy Conference—In conjunction with the Colorado and Denver Dairy Products Association, will be held at the Cosmopolitan Hotel, Denver, December 5, 6, 7. Ammon Bradshaw, Secretary, 415 C of C Bldg., Denver 2.

Wisconsin Milk Dealers Association—Annual convention will be held at the Schroeder Hotel, Milwaukee, Wis., December 7-9. Executive secretary, Harry Klueter, 1 W. Main St., Madison, Wis.

Illinois Dairy Products Association—Annual convention will be held at the Morrison Hotel in Chicago, Ill., December 13 to 15, 1948. Secretary M. G. Van Buskirk, 309 W. Jackson Blvd., Chicago 6, Ill.

National Dairy Council—Annual winter-meeting conference will be held at the Hotel Robert E. Lee in Winston-Salem, N. C., January 27 and 28, 1949. President, Milton Hult, 111 N. Canal St., Chicago 6, Ill.

Pennsylvania Association of Milk Dealers—Seventeenth annual convention will be held at the Benjamin Franklin Hotel in Philadelphia, Pa., February 22 and 23, 1949. Executive vice-president, Benj. G. Eynon, 324 Telegraph Bldg., Harrisburg, Pa.

Dairy Industry Week, Kansas State College, Manhattan, Kansas, February 22, 23, 24, 1949. Prof. T. J. Claydon, Department of Dairy Industry, Harrisburg, Pa.

●

ADD TO API DAIRY STAFF

Robert Y. Cannon joined the staff of the Department of Dairy Husbandry at Alabama Polytechnic Institute, Auburn, Alabama, September 15, 1948. Dr. Cannon is to be in charge of dairy manufacturing work at A. P. I. He is a native of Utah, but has lived in Iowa since 1930. Cannon went to school at Iowa State College where he received the B. S. degree in 1939. He took his M. S. degree in dairy manufacturing at Ohio State University one year later, and then was in the Army for four years. In 1948 he obtained his Ph. D. degree from the University of Wisconsin where he studied under Dr. H. H. Sommer.

BROWN INSTRUMENT PROGRAM

Division of Minneapolis-Honeywell Regulator Co. Has Program Designed for Transition from College to Job

A THREE-YEAR PROGRAM for expansion of development and production operations has been started by Brown division of Minneapolis-Honeywell Regulator Company as the second step in its $2,500,000 physical expansion. The first part of the three-year program has resulted in the hiring of 40 newly graduated engineers.

"The three-year schedule," said Harry F. Dever, president of Brown Instrument Company, Philadelphia, "not only means a necessary increase in our engineering staff but in several ways contributes toward providing newly hired graduates with a clearer and earlier insight into our manufacturing methods and procedures. It speeds up their becoming well acquainted with new and modern industrial processing for which our devices are used."

The plan, Dever pointed out, includes speedy indoctrination of the new engineers who are being assigned to various engineering departments. It means an immediate expansion of the company's development engineering by 30 per cent and by 10 per cent in application, industrial and general engineering.

The program is in keeping with findings of a recent survey made among leading engineerinng colleges by George M. Muschamp, Brown vice president in charge of engineering, Dever said. The survey confirmed previous views among educators and business leaders that industry must do its part, to the best of its ability, to help graduate engineers to learn more quickly, and to apply their book knowledge to their future jobs.

"We feel that our three-year plan, subject to improvement as physical and other conditions permit, will benefit the graduate and make him of greater value, sooner, to himself, to the company and to its customers," Dever pointed out.

The 40 graduate students in the first group were screened with placement bureaus of colleges from coast to coast. Each, Mr. Dever said, was chosen on the basis of his scholastic standing and general aptitude. Following interviews by company officials each student was taken on a tour of the Brown plant, was made acquainted with Philadelphia, its technical societies, living conditions, recreational facilities, and with the company and its opportunities and salary plans.

After initial indoctrination in company departmental operations, each graduate is being given a course in development, manufacture and application of industrial measuring and indicating instruments.